



PRODUCT INFORMATION

Elettromedia - May 2013

www.audison.eu

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Product Information

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BIT DRIVE, YOUR SOUND

Audison is proud to announce a revolutionary digital audio technology for automobiles: **bit Drive**. Audison has a tradition of innovation; each new project making a qualitative leap in high fidelity mobile sound. Our **“no-compromise” philosophy**, our constant attention to new technologies and being plugged-in to rapid developments in the market have made it possible for this milestone: complete digital audio in the mobile environment.

Emidio Vagnoni, Technical Director and Audison co-founder, observes: *“Over the past 5 years our research team has focused its efforts in the field of digital audio.*

Our deep experience, gained over many years in analogue topology, also highlighted the limitations of this technology to reproduce sound in the challenging environment such as found in the car.

The study of digital technology is not limited to, as often happens, replicating traditional analogue technology more efficiently, but primarily focuses on the new possibilities it could offer to improve the sound reproduction and ergonomic integration of systems in vehicles.

Highly innovative product solutions were introduced, such as Audison bit processors for digital signal processing through DSP and AD Link and AC Link for the transmission and management of digital signals in each channel of amplification.

This “wind of change” led to the emergence of the Audison Full DA digital audio technology, immediately setting new sound reproduction standards in the mobile environment”.

With the introduction of **bit One**, **bit Ten** and **bit Ten D** processors, **Thesis** and **Voce amplifiers**, Audison has been recognized by industry leaders, specialists and moreover by enthusiasts as the “reference” in the application of digital audio technologies to achieve unheard-of sound reproduction.

The Audison spirit never ceases to be innovative and continues with our latest creation: the **bit Tune**.

The Audison **bit Tune** is a revolutionary tool that allows you to automatically calibrate Audison bit processors, quickly providing maximum audio performance.

The **bit Tune** also includes an important set of tools useful in the everyday routine of the mobile electronics specialist, enabling you to enhance your creativity through instrumental experimentation.

Audison is proud to introduce the bit Drive technology that is incorporated in all of its products featuring sound digital processing functions (DSP); with these products today, thanks to the bit Tune, you can implement the audio system you’ve always dreamt of: “Your Sound”.

With bit Drive the Audison teams’ vision has gone beyond the product; in fact, we **developed a web portal** where future products with **bit Drive** technology can be registered, starting with **bit Tune**. By registering your product you become part of a community where you can access information and support for all products with bit Drive technology and take advantage of exclusive materials and services!



BIT TUNE, PERFECT SOUND HAS NEVER BEEN SO EASY!

The **Audison bit Tune** is a revolutionary system of **automatic calibration** for Audison bit processors developed with bit Drive technology. **Bit Tune** also includes a multitude of additional features for **electro-acoustic verification and analysis of any car audio system**.



The Audison team's goal in developing the **bit Tune** was to speed up the setting of basic parameters for the calibration of the bit processors (time alignment, equalization, levels, etc.), ensuring an excellent level of acoustic performance. This phase also includes the diagnosis of common "errors" (channel inversion/phase, no signal on one channel/cable, etc.) to set the specialist free from his "routine" work and allow him to **focus** on the art of "fine-tuning". Only personal interpretation and experience can realize what a machine could never do: create **"Your Sound"**!

Bit Tune can be registered in the **Audison bit Drive** web portal to receive a free Pro license or to obtain a Full license (details in the data sheet). By registering, you also get an account to access the bit Tune users' community and exclusive content dedicated to registered users.

Bit Tune can also be used to verify **Audison Full DA** systems. Thanks to the presence of digital optical inputs/outputs (TOSLINK), the possibility exists to read the bit rate and sampling frequency of the input signal.

BIT TUNE, KEY FEATURES

To describe the bit Tune and its functions, it would be easier and faster to describe what is not possible to do, but this would not convey the breadth of possibilities..., so let's progress step by step.

What is included?

The bit Tune system comes packaged in a professional carrying case, complete with all of the accessories required for its use. This case ensures safe transportation during events or trips outside of the installation center, and properly secures all materials, such as the microphones that require particular attention.



bit Tune

HSM - Hearing Simulation Mic. This is the most important component and is where the Audison research team focused most of its work, along with the acoustic analysis software. It is a **disc-shaped microphone with 5 high-quality microphone capsules** arranged around half of its circumference. The most important design element of the HSM was to **simulate the “head” of the listener from the listening position**, hence the name Hearing Simulation.

The simulation of human sound perception is accurate, thanks to precise design choices: the overall diameter of the disc shape approximates the distance between the two human ears; number and placement of the capsules are designed to reproduce the polar response of the human auditory system. Through the bit Drive algorithm integrated within the PC software, the signals acquired by the human hearing characteristics of HSM microphone are processed, setting configuration parameters for the processor, making the response of the audio system “natural.” The unique mounting system provided places the microphone array in the perfect position.

LPM - Level and Polarity Mic. This is a single-capsule microphone, used for **setting system levels and for checking the acoustic phase of the speakers**. The “strap-type” mounting system provided places the microphone perfectly between the two front headrests. This small microphone can easily be removed from the mounting system in order to check the phase of a speaker, making best use of the “polarity check” wizard in the software.

CMU - Central Measurement Unit. This is the “brains” of the system, acting as an **interface between the acquired/generated data and the PC based management software**. It is equipped with a set of inputs and outputs to the car audio system and USB connection to control the Audison bit processor.

The CMU also incorporates a chassis mounted speaker that lets you hear the signal from a given input (pre-amplified, speaker, optical digital, etc.) or from the EMS (Electro Magnetic Sniffer). In the case of unwanted noise in the audio system, listening to the signal between various devices allows you to identify where the noise is generated.

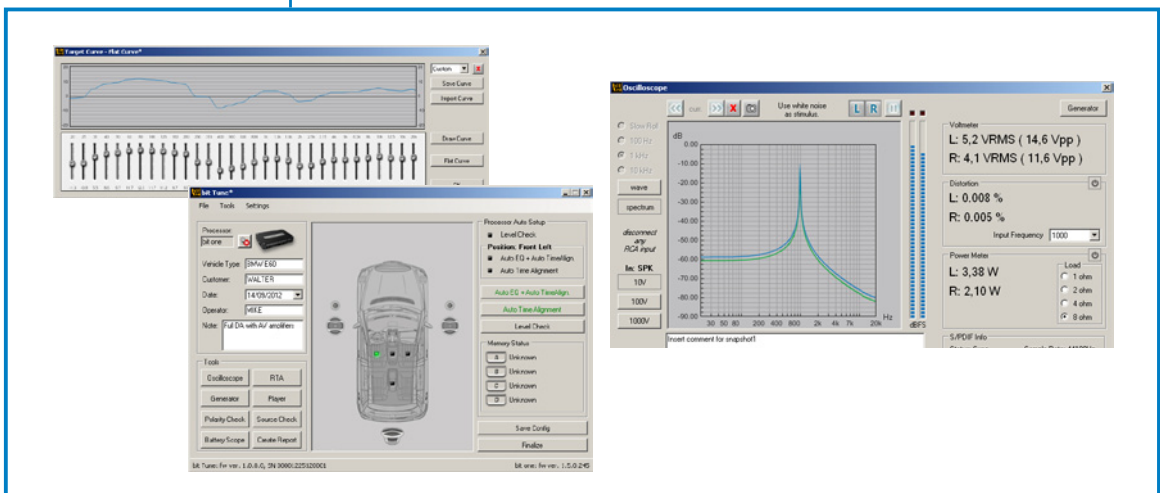


EMS and Speaker Load Simulator: fundamental functions for the mobile electronics specialist!

EMS - Electro-Magnetic Sniffer. Using the supplied probe and built-in speaker, this function allows you to identify areas of the car where electro-magnetic (radiated) noise is present, which can turn into unwanted noise present in the audio system (alternator noise, interferences of electronic control units, etc.). Once the “noisy” area is detected, it is possible to avoid noise by locating cables and/or devices away from the affected area.



Speaker Load Simulator. In recent years some manufacturers of OEM audio systems have provided a fault detection function to check for any speaker faults or problems with connections. In these cases, if the speaker is disconnected from the source to connect the cables to a processor/amplifier input, the system marks a failure or, in the worst-case scenario, blocks the source. The Speaker Load Simulator function gives you the flexibility to **simulate different types of loads** by connecting the speaker cables directly to the CMU Speaker-In inputs. The CMU will then check if the source is equipped with a fault detection system and, possibly, what type of diagnostic it performs. By selecting one of three available types of load (No Load, 47 ohm or Speaker Simulator), you can identify what type of dummy load must be connected in parallel to the processor/amplifier input.



bit Tune

dsp auto-tuning & audio analyzer toolkit

ideato,
progettato,
costruito
in Italia

bit Drive



Power Supply

| | |
|----------------------------------|-------------|
| Voltage | 11 ÷ 15 VDC |
| Idling current | 0.8 A |
| Internal fuse (Cylindrical fuse) | 2 A delayed |

Input Stage

| | Sensitivity | Bandwidth |
|----------|-----------------|-----------|
| RCA | max ± 100 V pp | 20 kHz |
| BNC | max ± 100 V pp | 20 kHz |
| Hi-Level | max ± 1000 V pp | 20 kHz |

| | |
|----------------|---|
| HSM microphone | 1 |
| LPM microphone | 1 |

| | |
|---------------|-----------------------------|
| Optical Input | S/PDIF Max 192 kHz / 24 bit |
|---------------|-----------------------------|

Output Stage

| | |
|-------------------------|-----------------------------|
| 2 x Analog Pre Out | 4 V RMS |
| 2 x Analog Hi-Level Out | 5.5 V RMS |
| 1 x Digital Optical Out | S/PDIF Max 192 kHz / 24 bit |

Using With Pc

| | |
|------------------------------|---|
| PC connections | USB 1.0 / 2.0 |
| Software / PC requirements | Windows XP, Vista, 7 (32 bit or 64 bit) |
| Graphic card min. resolution | 1024 x 600 pixel |
| Temperature range Operating: | 0°C to 55°C (32°F to 131°F) |

Size

| | |
|----------------------|--|
| Case: | |
| W x H x D (mm / in.) | 490 x 390 x 160 / 19.21 x 14.92 x 6.29 |
| Weight (kg / lb.) | 4,1 / 9.03 |
| bit Tune unit: | |
| W x H x D (mm / in.) | 232 x 165 x 51 / 9.13 x 6.49 x 2 |
| Weight (kg / lb.) | 1,24 / 2.73 |

Audison bit Tune is a suite of electronic and acoustic test instruments used for the automatic calibration of Audison bit processors. This "single-chassis" solution offers a complete tuning process, improving the ease of installation and sound quality of car audio systems.

The heart of this device is the CMU Central Measurement Unit, packaged with two microphone systems, various connections as well as PC based software used to manage and analyse the audio system.

AUTO PROCESSOR SETUP: the automatic calibration function includes the following tools: Auto EQ, Auto Time Alignment, and Level Check. Automatically set: time alignment, equalization curve and output levels of an Audison bit processor connected to the bit Tune. The Processor Auto Setup tool is used with an on-screen wizard, and can be used independently to carry out specific measurements.

SOURCE CHECK: takes electrical measurements of the Pre Out or Hi-Level outputs of the connected source, displaying signal level. Using the spectrum analyser function (Spectrum), the user can graphically assess if the source signal is equalized or not.

RTA - REAL TIME ANALYZER: measures the acoustic response of the audio system, considering the characteristics of the vehicle acoustics. Measurements are taken using the HSM microphone.

POLARITY CHECK: with this tool you can check the electrical phase of the speakers installed in the audio system.

OSCILLOSCOPE: includes the following tools: Voltmeter, Power Meter, Distortion and Spectrum. Thanks to these tools, it is possible to perform electrical measurements of the signal level and distortion of an inputted audio signal as well as the power of amplifiers. The result of the measurements is available in graphic and numeric formats.

GENERATOR: creates sinusoidal signals adjustable in frequency (20Hz-20KHz) and amplitude. A bandwidth limited, adjustable time sweep can also be generated. It also features a generator of Pink and White Noise used to measure acoustic response.

PLAYER: a software tool used for the playback of music formats *.wav, *.Wma, *.mp3, *.flv, *.flac. Capable of handling up to 24bit/192kHz resolution files.

BATTERY SCOPE: implements an oscilloscope in DC, specifically calibrated to measure the vehicles' battery voltage found during vehicle start-up or audio system demands. This tool can detect immediate voltage drops which a common volt meter can't detect.

OPTICAL CABLE TEST: checks if signal is present on sources with S/PDIF optical output and provides the ability to analyse the digital bit rate and sampling frequency of the signal; audio can be heard through the built-in speaker of the bit Tune.

CREATE REPORT: automatically creates a report (in PDF format) with information concerning: the technician, the client, the vehicle, obtained measurements and the adjustments made through the Processor Auto Setup.

LOAD SIMULATOR: allows the user to check if the OEM source unit or amplifier requires a load (speaker connected) on the speaker leads to output audio. The check is performed by the bit Tune by applying a resistive or inductive load. Once the check has been performed, a similar load has to be connected to the OEM source outputs, to then connect an amplifier or a processor to the source.

HI-LEVEL ART TEST: checks if the Hi-Level outputs of the OEM source are compatible and capable of working with ART (Automatic Remote Turn On) equipped processors and/or amplifiers.

LINE NOISE ANALYZER: checks if there is audio signal and possible noise disturbances along the analogue or optical digital audio line. The check is confirmed by listening to the signal on the built-in speaker of the bit Tune.

ELECTROMAGNETIC SNIFFER TEST: with the EMS probe placed on or near electrical parts or wiring of the vehicle, you can acoustically identify the source of electromagnetic (radiated noise) disturbance using the built-in speaker of the bit Tune.

bit Tune

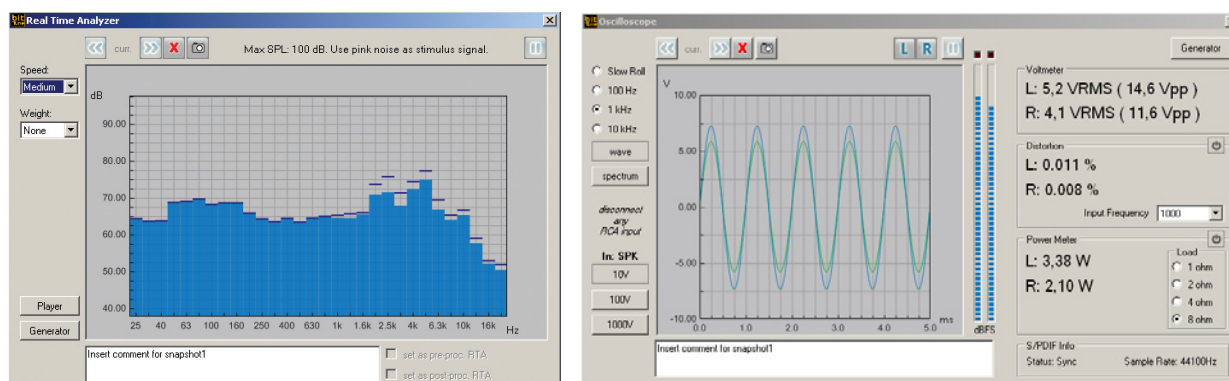
dsp auto-tuning & audio analyzer toolkit

bit Tune: Software licenses

STANDARD. Default software version found in every bit Tune; making it possible to automatically calibrate any product featuring the Audison bit Drive technology (the Audison bit processors as well as future products).

PRO. This version has all the functionality of the Standard version, with the added benefit of fully enabling all of the analysis and measurement instruments (oscilloscope, RTA, etc.) that the bit Tune is capable of, only when connected to a product featuring the Audison bit Drive technology (the Audison bit processors as well as future products). To activate the PRO version, simply register the product by logging onto the Audison bit Drive website.

FULL. This version has been designed for professional installation technicians performing extensive in-car and test bench measurements and experimentations. In fact, it offers all the functions found in the PRO version, enabling the analysis and measurement instruments (oscilloscope, RTA, etc.) even without being connected to a device featuring the Audison bit Drive technology.

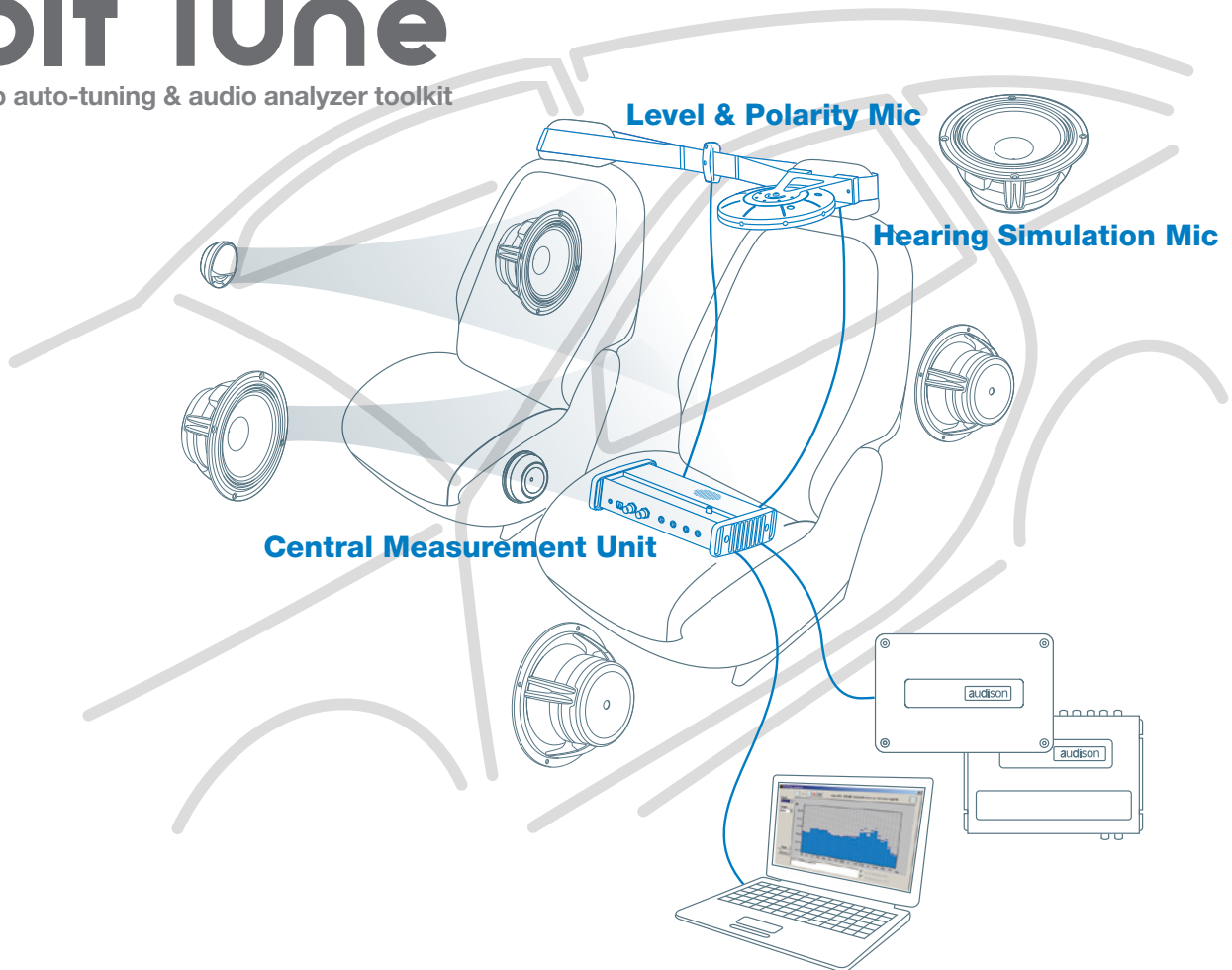


| bit Tune Instruments | with PC | bit Tune status | | | | | |
|------------------------------|---------|-----------------|---|----|---|----|---|
| | | T | S | SP | P | PP | F |
| PROCESSOR AUTO SETUP | ✓ | ✓ | 🔒 | ✓ | 🔒 | ✓ | ✓ |
| SOURCE CHECK | ✓ | ✓ | 🔒 | 🔒 | 🔒 | ✓ | ✓ |
| RTA | ✓ | ✓ | 🔒 | 🔒 | 🔒 | ✓ | ✓ |
| POLARITY CHECK | ✓ | ✓ | 🔒 | ✓ | 🔒 | ✓ | ✓ |
| OSCILLOSCOPE | ✓ | ✓ | 🔒 | 🔒 | 🔒 | ✓ | ✓ |
| POWER METER | ✓ | ✓ | 🔒 | 🔒 | 🔒 | ✓ | ✓ |
| DISTORTION METER | ✓ | ✓ | 🔒 | 🔒 | 🔒 | ✓ | ✓ |
| GENERATOR | ✓ | ✓ | 🔒 | ✓ | 🔒 | ✓ | ✓ |
| PLAYER | ✓ | ✓ | 🔒 | ✓ | 🔒 | ✓ | ✓ |
| BATTERY SCOPE | ✓ | ✓ | 🔒 | 🔒 | 🔒 | ✓ | ✓ |
| OPTICAL CABLE TEST | ✓ | ✓ | 🔒 | 🔒 | 🔒 | ✓ | ✓ |
| CREATE REPORT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LOAD SIMULATOR SPEAKER IN | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| HI-LEVEL ART TEST | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| SOURCE LINE ANALYZER | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| ELETTROMAGNETIC SNIFFER TEST | - | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

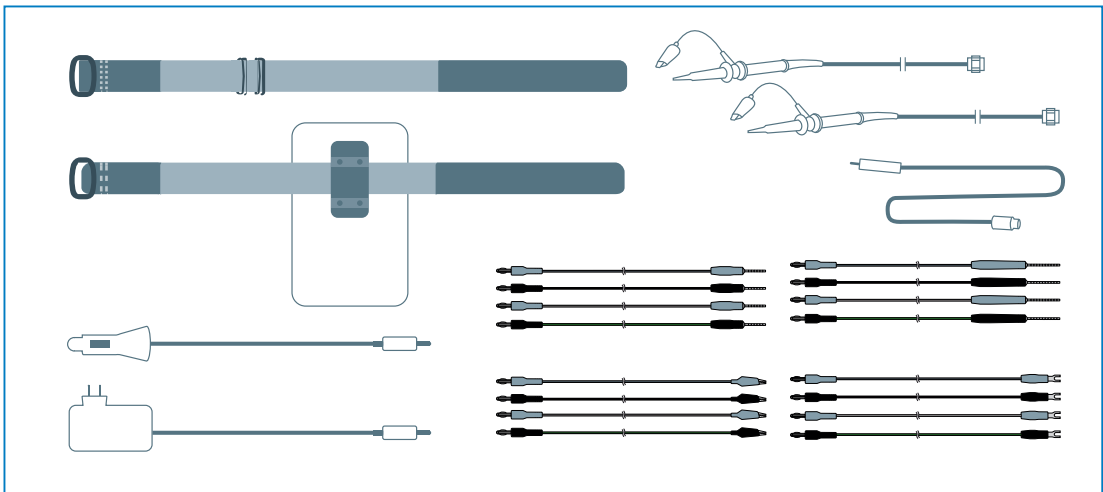
| Legend | |
|----------------------|----|
| TRIAL 90 days | T |
| STANDARD | S |
| STANDARD + PROCESSOR | SP |
| PRO | P |
| PRO + PROCESSOR | PP |
| FULL | F |

bit Tune

dsp auto-tuning & audio analyzer toolkit



Accessories





bit One

Signal Interface Processor

bit One.1 Version



Power Supply

| | |
|--------------------------|---------------------|
| Voltage | 11 ÷ 15 VDC |
| Idling current | 0.45 A |
| Switched off without DRC | < 0.5 mA |
| Switched off with DRC | < 1.8 mA |
| Remote IN voltage | 7 ÷ 15 VDC (1.3 mA) |
| Remote OUT voltage | 12 VDC (130 mA) |

Signal Stage

| | |
|--|----------------|
| Distortion - THD @ 1 kHz, 1 V RMS Output | 0.002 % |
| Bandwidth | 4.5 ÷ 21k Hz |
| S/N Ratio @ A weighted | 102 dBA |
| Channel Separation (@1 kHz) | 77 dB |
| Input sensitivity (Low Level) | 0.3 ÷ 5 V RMS |
| Input sensitivity (High Level) | 1.2 ÷ 20 V RMS |
| Max Output Levels | 4 V RMS |
| Input impedance (Low Level) | 20 kΩ |
| Input impedance (High Level) | 5 kΩ |

Input Stage

| | |
|-------------------------|---------------------------------|
| Low Level (Pre In) | Ch 1 ÷ Ch 6, AUX1 L/R, AUX2 L/R |
| High Level (Speaker In) | Ch 1 ÷ Ch 8, Phone In |
| Coaxial and Optical | S/PDIF Max 48kHz / 24 bit, PCM |

Output

| | |
|------------------------------------|-------------|
| Analog Pre Out | Ch 1 ÷ Ch 8 |
| Digital Out 48kHz - 24 bit AD Link | Ch 1 ÷ Ch 8 |

Crossover

| | |
|------|--|
| Type | 12 / 24 / 36 / 48 dB Linkwitz 6 / 12 / 18 / 24 / 30 / 36 / 42 / 48 dB Butterworth |
| Mode | Full / Hi-Pass / Low Pass / Band Pass |

Equalizer

| | |
|------|--------------------------------------|
| Type | 31 Band, ISO 1/3 Oct, 20 Hz ÷ 20k Hz |
| Gain | ±12 dB |

Time Alignment

| | |
|-------|--|
| Delay | 0 ÷ 22 ms in 0,02 ms steps (748 cm / 294.5 in.) |
|-------|--|

Size

| | |
|----------------------|---------------------------------------|
| W x H x D (mm / in.) | 225 x 32,3 x 150 / 8.85 x 1.27 x 5.90 |
| Weight (kg / lb.) | 1,345 / 2.965 |

Audio DSP and converters

32-BIT floating point Analog Devices Sharc (Clock speed: 266MHz) Digital Signal Processing chip and Wolfson A/D D/A converters working in PCM at 48kHz with 24 Bit resolution. Tuning functions can be heard in real time due to processing speed.

Audio Inputs

8 independent high-level channels (with automatic summing capability) or 6 independent analog low-level channels;
2 analog low-level stereo auxiliary inputs;
1 optical digital input;
1 electric coaxial digital input;
1 high-level momentary audio interrupt input (with Mute IN) for use with mobile phone or navigation systems.

Audio Outputs

8 independent low-level analog channels featuring adjustable level and 1 AD Link output (8 independent digital audio channels through a single CAT 5.S LAN cable for use with AD Link provided amplifiers).

Digital Control System

1 USB / B (2.0) connector for PC connection;
2 AC Link control bus connectors for DRC and AC Link amplifiers.

Configuration

Guided procedure that, thanks to a wide range of set names, provides the ability to assign each component to the bit One connections and automatically coordinate their functioning.

Turn-on Controls

ART automatic remote turn on/off circuit;
Through the car ignition key with memory function;
Through the DRC;
Automatically through the hands-free phone kit.

In/Out Volume

Input sensitivity automatically adjusted for the main inputs (with supplied Test CD and DVD);
Manual input sensitivity adjustment for auxiliary inputs;
Independent level control for each output channel for system fine tuning (-40 ÷ 0 dB).

Dynamic Equalizer

System automatically self-adjusts through an equalization between low and high listening levels that can be set by the user and controlled by the DRC.

De-equalization and calibration

Automatic de-equalization of signal fed into the high-level inputs (with supplied Test CD or DVD) and levels calibration.

Equalizers

One 31-band graphic equalizer (1/3Oct.; ±12dB) for each one of the 4 auxiliary input;
One 31-band graphic equalizer (1/3 Oct.; ±12dB) for each one of the 8 output channels.

Crossover Filter

Filter typology: Selectable; Hi-pass, Lo-pass, Bandpass, Full Range;
Cut-off frequency: 70 steps available from 10 Hz to 20 kHz;
Cut-off slope: Selectable; 6 to 48 dB/Oct.;
Alignments: Selectable; Linkwitz or Butterworth;
Mute: Selectable for each output (On/Off);
Phase: Selectable for each output (0°/180°).

Signal channels reconstruction

It can reconstruct a stereo signal from a multi-channel signal. In addition it can reconstruct a centre channel and subwoofer channels from a stereo input alone.

Time Alignment

Guided procedure for the speaker distance data entry with an automated calculation of proper delay times for each channel for accurate time alignment set-up. System also provides for manual fine tuning of delay (0 ÷ 22 ms max).

Auto Restart

Automatic turn Off/On, if the DSP locks up.

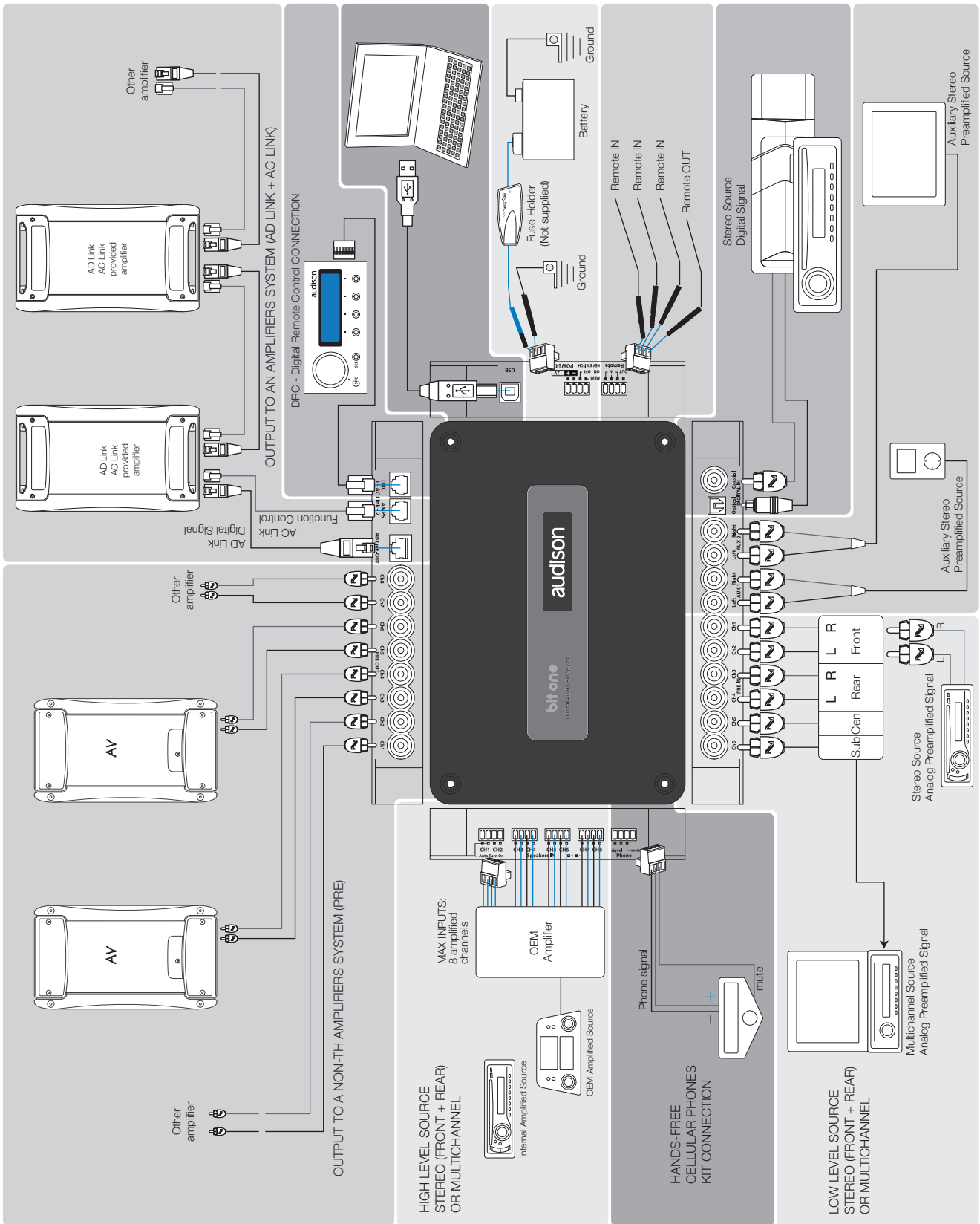
DRC Master Volume control, Subwoofer Volume control, Balance control, Fader control, Input selection, Memory selection, Dynamic Equalizer On/Off, Adjustable display brightness, Access to digital features of Audison TH amps if connected.

Memory

4 presets separately managed and recalled by the DRC Remote Control.

Bit One software

Windows (Win 2000, XP, Vista, 7) based software with "Standard" and "Expert" operating modes;
Screen resolution: 1024 x 768 px min.



bit Ten D

Signal Interface Processor



Power Supply

| | |
|--------------------------|---------------------|
| Voltage | 11 ÷ 15 VDC |
| Idling current | 0,4 A |
| Switched off without DRC | 2,5 mA |
| Switched off with DRC | 4 mA |
| Remote IN voltage | 7 ÷ 15 VDC (1,3 mA) |
| Remote OUT voltage | 12 VDC (130 mA) |

Signal Stage

| | |
|---------------------------------------|---------------|
| Distortion-THD @ 1 kHz, 1V RMS Output | 0.005 % |
| Bandwidth @ -3 dB | 10 ÷ 22k Hz |
| S/N Ratio @ weighted | |
| Digital Input | 105 dBA |
| Master Input | 95 dBA |
| Aux Input | 96 dBA |
| Channel Separation (@1 kHz) | 85 dB |
| Input sensitivity (Speaker IN) | 2 ÷ 15 V RMS |
| Input sensitivity (AUX in) | 0,6 ÷ 5 V RMS |
| Input sensitivity (PHONE) | 2 ÷ 15 V RMS |
| Input impedance (Speaker IN) | 2,2 kΩ |
| Input impedance (AUX) | 15 kΩ |
| Input impedance (PHONE) | 2,2 kΩ |
| Max Output Level (RMS) @ 0.1% THD | 4 V RMS |

Input Stage

| | |
|---|------------------------------|
| High Level (Speaker) | FL - FR - RL - RR - PHONE IN |
| Low Level (Pre) | AUX IN |
| Digital Optical IN (S/PDIF max 96 kHz/24 bit) | OPTICAL IN |

Output Stage

| | |
|-------------------------|--------------------------|
| Low Level Pre (Default) | FRONT L/R, REAR L/R, SUB |
| Digital AD Link | Ch 1 ÷ Ch 8 S/PDIF |

Connection

| | |
|-----------------------------|-----------------------|
| From / to personal computer | 1 x USB / B (1.1/2.0) |
| To Audison Electronics | AC Link controls |

Crossover N.5 (one each output channel)

| | |
|---------------------|--|
| Mode | Full / High Pass / Low Pass / Band Pass |
| Type and slope | Linkwitz @ 12/24 dB Butterworth @ 6/12/18/24 dB |
| Crossover frequency | 68 steps @ 20 ÷ 20k Hz |
| Phase control | 0° ÷ 180° |

Equalizer

| | |
|-----------------------------|---|
| Hi-Level Input (Speaker In) | Automatic De-Equalization |
| Outputs | N.5 Graphic: ± 12 dB @ 31 Band ISO 1/3 Oct. 20 ÷ 20k Hz |

Time Alignment

| | |
|----------|----------------------------|
| Distance | 0 ÷ 510 cm / 0 ÷ 200.8 in. |
| Delay | 0 ÷ 15 ms |
| Step | 0,08 ms; 2,8 cm / 1.1 in. |
| Fine set | 0,02 ms; 0,7 cm / 0.27 in. |

Size

| | |
|----------------------|-------------------------------------|
| W x H x D (mm / in.) | 191 x 34 x 131 / 7.51 x 1.33 x 4.76 |
| Weight (kg / lb.) | 0,6 / 1.322 |

Audio DSP and converters

32 bit Cirrus Logic (Clock speed: 147 MHz) Digital Signal Processing chip and A/D D/A converters working in PCM at 48 kHz with 24 bit resolution. The processor speed allows the user to hear and verify in real time the changes applied during the tuning.

Audio Inputs

4 independent high-level channels with automatic summing capability;
1 analog low-level stereo auxiliary input;
1 optical digital input;
1 high-level momentary audio interrupt input (with priority) on Phone Mute cable (settable through PC).

Audio Outputs

5 independent analog PRE channels featuring adjustable level;
1 AD Link output featuring 8 independent digital audio channels through a single CAT 5.S LAN cable for use with amplifiers featuring AD Link input.

Control Connections

1 USB / B (2.0) connector for PC connection;
1 AC Link control bus connector for DRC;
1 AC Link control bus for use with amplifiers featuring AC Link;
1 input for external Mute (settable through PC).

Configuration

Guided procedure that, thanks to a wide range of set names, provides the ability to assign each component to the bit Ten D connections and automatically coordinate their functions.

Turn-on Controls

ART, Automatic Remote Turn on/off, selectable from Hi-Level Front L. The ART can be enabled through an external switch;
Through the Remote IN;
Through vehicle ignition key trigger with memory function;
Through the DRC;
Automatically through the hands-free phone kit momentary interrupt.

In/Out Volume

Manual input sensitivity adjustment for the Master Hi-Level inputs (with supplied Test CD);
Manual input sensitivity adjustment for auxiliary inputs;
Independent level control for each output channel for system fine tuning (-40 ÷ 0 dB).

De-equalization

Automatic de-equalization of signal fed into the high-level inputs (with supplied Test CD) if necessary. It can also be performed without the PC.

Equalizers

31-band graphic equalizer (1/3 Oct.; ±12dB) for each analog and digital output channel.

Crossover Filter

Filter typology: Hi-pass, Lo-pass, Full Range or Band-pass with independent selectable cut-off slope;
Cut-off frequency: 70 steps available from 20 Hz to 20 kHz;
Cut-off slope: 6 to 24 dB/Oct.;
Filter alignment: Linkwitz or Butterworth;
Mute function: selectable for each output (on/off);
Phase: selectable for each output (0°/180°).

Signal channels reconstruction

It can reconstruct a stereo output signal from a multi-channel input signal. In addition it can reconstruct rear, centre and subwoofer output channels from a stereo input.

Time Alignment

Guided procedure for the speaker distance data entry with an automated calculation (distance to time) for each channel for accurate delay times. System also provides for manual fine tuning of delay (0.02 ms fine set).

DRC

Master Volume, Subwoofer Volume, Balance and Fader controls, Input selection, Memory selection, Adjustable display brightness. Access to digital features of amplifiers featuring AC Link.

Memory

2 presets separately managed and recalled with the DRC.

bit Ten D software

Windows (XP, Vista and 7) based software with "Standard" and "Expert" operating modes;
Screen resolution: 1024 x 600 px min.

bit Ten

Signal Interface Processor

ideato,
progettato,
costruito
in Italia



| Power Supply | |
|--------------------------|---------------------|
| Voltage | 11 ÷ 15 VDC |
| Idling current | 0.4 A |
| Switched off without DRC | 2.5 mA |
| Switched off with DRC | 4 mA |
| Remote IN voltage | 7 ÷ 15 VDC (1.3 mA) |
| Remote OUT voltage | 12 VDC (130 mA) |

| Signal Stage | |
|---------------------------------------|---------------|
| Distortion-THD @ 1 kHz, 1V RMS Output | 0.005 % |
| Bandwidth @ -3 dB | 10 ÷ 22k Hz |
| S/N Ratio @ weighted | |
| Master Input | 95 dBA |
| Aux Input | 96 dBA |
| Channel Separation (@ 1 kHz) | 85 dB |
| Input sensitivity (Speaker In) | 2 ÷ 15 V RMS |
| Input sensitivity (AUX in) | 0.6 ÷ 5 V RMS |
| Input sensitivity (PHONE) | 2 ÷ 15 V RMS |
| Input impedance (Speaker In) | 2,2 kΩ |
| Input impedance (AUX in) | 15 kΩ |
| Input impedance (PHONE) | 2,2 kΩ |
| Max Output Level (RMS) @ 0.1% THD | 4 V RMS |

| Input Stage | |
|----------------------|------------------------------|
| High Level (Speaker) | FL - FR - RL - RR - PHONE IN |
| Low Level (Pre) | AUX IN |

| Output Stage | |
|-------------------------|--------------------------|
| Low Level Pre (Default) | FRONT L/R, REAR L/R, SUB |

| Connection | |
|-----------------------------|-----------------------|
| From / to personal computer | 1 x USB / B (1.1/2.0) |

| Crossover N.5 (one each output channel) | |
|---|--|
| Mode | Full / High Pass/ Low Pass/ Band Pass |
| Type and slope | Linkwitz @ 12/24 dB Butterworth @ 6/12/18/24 dB |
| Crossover frequency | 68 steps @ 20 ÷ 20k Hz |
| Phase control | 0° ÷ 180° |

| Equalizer | |
|-----------------------------|---|
| Hi-Level Input (Speaker In) | Automatic De-Equalization |
| Outputs | N.5 Graphic: ± 12 dB @ 31 Band ISO 1/3 Oct. 20 ÷ 20k Hz |

| Time Alignment | |
|----------------|----------------------------|
| Distance | 0 ÷ 510 cm / 0 ÷ 200.8 in. |
| Delay | 0 ÷ 15 ms |
| Step | 0,08 ms; 2,8 cm / 1.1 in. |
| Fine set | 0,02 ms; 0,7 cm / 0.27 in. |

| Size | |
|----------------------|------------------------------------|
| W x H x D (mm / in.) | 191 x 34 x 131 / 7.51 x 1.33x 4.76 |
| Weight (kg / lb.) | 0,6 / 1.322 |

Audio DSP and converters

32 bit Cirrus Logic (Clock speed: 147 MHz) Digital Signal Processing chip and A/D D/A converters working in PCM at 48 kHz with 24 bit resolution. The processor speed allows the user to hear and verify in real time the changes applied during the tuning.

Audio Inputs

4 independent high-level channels with automatic summing capability;
1 analog low-level stereo auxiliary input;
1 high-level momentary audio interrupt input (with priority) on Phone Mute cable (settable through PC).

Audio Outputs

5 independent analog PRE channels featuring adjustable level.

Control Connections

1 USB / B (2.0) connector for PC connection;
1 AC Link control bus connectors for DRC;
1 input for external Mute (settable through PC).

Configuration

Guided procedure that, thanks to a wide range of set names, provides the ability to assign each component to the bit Ten connections and automatically coordinate their functioning.

Turn-on Controls

ART, Automatic Remote Turn on/off, selectable from Hi-Level Front L. The ART can be enabled through an external switch;
Through the Remote IN;
Through the car ignition key with memory function;
Through the DRC (optional);
Automatically through the hands-free phone kit.

In/Out Volume

Input sensitivity manual adjustable for the Master Hi-Level inputs (with supplied Test CD);
Manual input sensitivity adjustment for auxiliary inputs;
Independent level control for each output channel for system fine tuning (-40 ÷ 0 dB).

De-equalization

Automatic de-equalization of signal fed into the high-level inputs (with supplied Test CD) if necessary. It can also be performed without the PC.

Equalizers

31-band graphic equalizer (1/3 Oct.; ±12 dB) for each output channels.

Crossover Filter

Filter typology: selectable; Hi-pass, Lo-pass, Full Range, Band pass with independent selectable cut-off slope.

Cut-off frequency: 70 steps available from 20 Hz to 20k Hz;

Cut-off slope: selectable; 6 to 24 dB/Oct.;

Selectable alignment: Linkwitz or Butterworth;

Mute: selectable for each output (On/Off);

Phase: selectable for each output (0°/180°);

Signal channels reconstruction

It can reconstruct a stereo output signal from a multi-channel input signal. In addition it can reconstruct rear, centre and subwoofer output channels from a stereo input.

Time Alignment

Guided procedure for the speaker distance data entry with an automated calculation (distance to time) for each channel for accurate delay times. System also provides for manual fine tuning of delay (0.02 ms fine set).

DRC (optional)

Master Volume, Subwoofer Volume, Balance and Fader controls, Input selection, Memory selection, Adjustable display brightness.

Memory

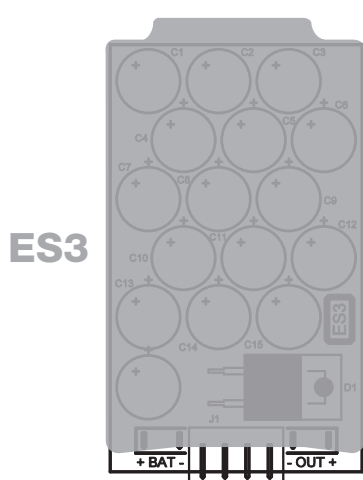
2 presets separately managed and recalled by the DRC (optional).

bit Ten software

Windows (XP, 7 and Vista) based software with "Standard" and "Expert" operating modes;
Screen resolution: 1024 x 600 px min.

accessories

For bit One, bit Ten D, bit Ten

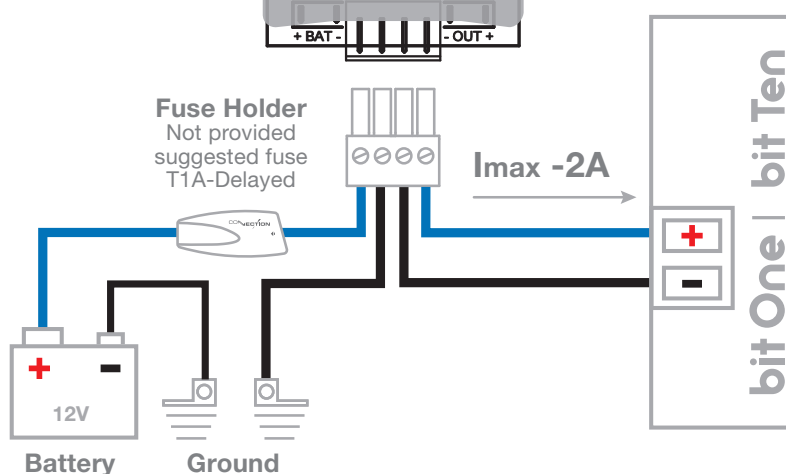


ES3

bit Energy Storage Start & Stop

It prevents the processor from shutting down when turning on cars featuring the start & stop system

When starting the engine, the vehicle battery voltage might decrease below 8 Volts value. If a signal processor (bit One, bit Ten) is installed in your car system, especially with cars featuring the start & stop system, low supply voltage values might make the processor shut down. In order to avoid waiting for the processor to complete its turn-on cycle again, you can install the ES3 by connecting it in series to the processor power supply cables.



ECK DRC

DRC Cable Extension kit



It is a kit composed of a cable and an adapter allowing a 2 m / 78.74 in. additional extension of the cable supplied with the DRC. This extension is required for installations on especially long vehicles such as SUV's. Total length of the supplied cable with the extension is equal to 6,5 m / 225.90 in.

PACKAGE: Polybag - Qty. 1

accessories

For bit One, bit Ten D



Optical digital audio signal cable, designed for car audio applications, permitting the transfer of the optical signal along its 10 m / 393.70 in. length without signal loss. An especially thicker sheath protects the optical fibre to prevent the cable from damages if it is pressed against sharp edges. The metal connector protects the optical fibre for its full length, ensuring a stable transmission of the signal also in the event of strong vibrations.

OP 1.5

TOSLINK Optical Cable 1,5 m / 59.05 in.

Optical cable ending with TOSLINK connectors for S/PDIF digital audio signals. Cable length 1,5 m / 59.05 in. PACKAGE: Polybag - Qty. 1



OP 4.5

TOSLINK Optical Cable 4,5 m / 177.16 in.

Optical cable ending with TOSLINK connectors for S/PDIF digital audio signals. Cable length 4,5 m / 177.16 in. PACKAGE: Polybag - Qty. 1



STA

F/F Socket TOSLINK Adapter

Optical adapter to extend optical cables featuring TOSLINK connectors. PACKAGE: Polybag - Qty. 1

For bit Ten D, bit Ten



CBT 1

RCA bit Ten Adapter Cable

RCA connector making link fast and link. It expedites connections between the head unit PRE OUTS (2 V min.) and the bit Ten Hi-Level inputs. PACKAGE: Carton Box - Qty. 1



ABOUT US

Elettromedia, an Italian company, is a leader within the world-wide car Hi-Fi market. Born in 1987 in Potenza Picena by a group of friends who shared the same passion for in-car high fidelity, throughout the past years Elettromedia has been walking the path of excellence: its products are distributed in more than 50 countries; the company has received many awards and acknowledgements from the most authoritative leaders within the car audio industry; it also can boast reviews of more than 3000 pages published in 30 different languages (visit: www.elettromedia.it/press_area.asp).

The Elettromedia brands are Audison, Hertz, Connection and AZaudiocomp. Through a co-branding strategy, the company offers all of the components required for a complete, top-level car audio system.

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AWARDS



Press Kit

(www.elettromedia.eu, Press Room)

bit Product Information

(PDF version, 150 dpi resolution)

Logos: Audison, bit Tune, bit One, bit Ten, bit Ten D, bit Drive, Full DA

(Adobe Illustrator version, 300 dpi resolution)

Photo (JPG version, 300 dpi resolution)



bit Tune



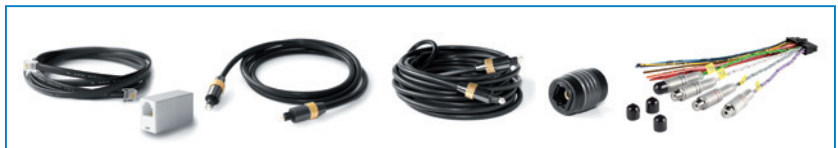
bit One



bit Ten D



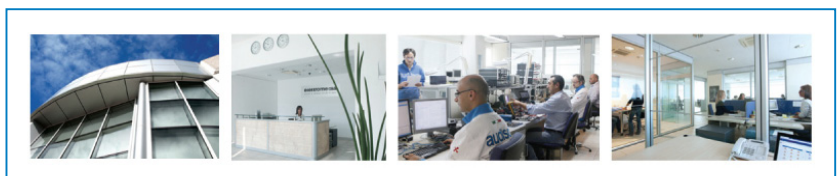
bit Ten



Accessories



Technologies



Elettromedia_Headquarter