TC-7533 *Bushmaster* Instruction Manual

REV BMII-20

Stereo Audio Digital-to-Analogue Converter

Overview

The TC-7533 Bushmaster is a reference-quality digital-to-analogue audio converter featuring the latest DAC Audio technology, Direct Coupled output stage, and Class-AB headphone stage. The Bushmaster is designed for maximum transparency and critical playback in professional audiophile applications.

Burn in

Many users report that the sound output develops in quality after a few days of use. The Bushmaster can be left powered on and playing a music stream with the volume turned down for a few days to speed up the burn in process.

Fixed Output Level connection

The Bushmaster Fixed Output is designed to connect to the CD or AUX input of an amplifier.

Front Panel

Digital Inputs

Four digital input connectors (2 x coaxial and 2 x optical).

Input Status Display

Five LED's on the front panel indicate which digital input is selected and when the Bushmaster is in AUTO or MANUAL mode.

Select Switch

The Select switch allows you to select between AUTO input signal detect, Manual input channel selection, and LED sleep mode.

Stereo Headphone Socket

The stereo headphone socket mutes the fixed RCA/PHONO output when a headphone plug is inserted

Headphone Amplifier

The Bushmaster headphone output is driven by a high-end headphone amplifier. It is designed to drive loads between 12 to 600 Ohms.

Volume Control

The front-panel Volume Control sets the output level of the headphone.

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Rear Panel

Digital Inputs

Four digital inputs, selected from the front-panel toggle switches.

The *Bushmaster* will not decode DSD, AC3, DTS, or ADAT signals.
176.4kHz sampling rate is not supported.

Input 1 – Optical
The optical input 1 is a TOSLINK connector.

Input 2 – Optical
The optical input 2 is a TOSLINK connector..

Input 3 - SPDIF
The coaxial input uses a RCA connector.

Input 4 – SPDIF
The coaxial input uses a RCA connector.

Analogue Output

The Bushmaster has a Left and Right Fixed Line output, terminated into a pair of RCA/PHONO sockets.
The output is disconnected when a headphone is plugged into the headphone socket. In this condition the Bushmaster can be used as a headphone amplifier.

DC power supply socket

The supplied external AC-DC power supply is 12Volts. The Bushmaster can however work with regulated power supplies up to 15Volts. The Bushmaster also supports the use of 12V rechargeable batteries or battery packs.
The centre pin is the Positive power supply terminal.
    A country specific AC-DC power cord is included with each Bushmaster converter shipped to most countries. Plug adapters for less well known configurations are otherwise available locally.
The Bushmaster can operate from as little as 200mA, and withstand external DC power drop out conditions for up to 2 seconds..

Ground Terminal

The Bushmaster has a ground terminal. This should be used for connection to your amplifier if you are experiencing ground loop problems.

Installation

1. Connect the DC plug from the Bushmaster power supply to the DC socket on the DAC.
2. Connect the power cord figure of 8 end to the Bushmaster power supply.
3. Connect the DAC input sockets to your audio and video equipment with suitable optical or digital coaxial cables. See our website for our own list of suitable cables and conversion adapters.
4. Connect the DAC FIXED stereo output via RCA/PHONO cables to the CD or AUX input of your amplifier via stereo RCA/PHONO cables of a suitable length.
5. Plug the mains plug end of the Bushmaster power supply power cord into a mains socket.
6. Press the Power button to switch ON the DAC.

NOTICE:

1. The Bushmaster does not have a variable RCA/PHONO output. It should therefore not be used as a preamplifier for a power amplifier.
2. Switch the Bushmaster On before your amplifier, and switch your amplifier OFF before the Bushmaster. This is to prevent the switch off signal pulse from the Bushmaster passing to your speakers.

AUTO MODE

1. Switch the DAC OFF via the front panel Power button.
2. Wait at least ten seconds.
3. Switch the DAC back ON via the Power button.
4. Whilst the LEDs are each lighting up one by one, press and hold down the SELECT button.
5. When all the LEDs are lit up, let go of the SELECT button.

The STATUS LED will light up, and the DAC will scan each input one by one till it finds a valid audio signal. The STATUS LED and the operating input LED will now both light up.

When the input signal is removed, or the external equipment plugged into that input is switched OFF, the DAC will start to scan the inputs again till it finds a new valid input signal.

IMPORTANT:

The Auto function won't operate with incoming digital signals that do not switch OFF when no audio is present. Examples of this are some satellite and cable boxes. In those cases you have to use the Manual Select function.

MANUAL MODE

If the STATUS LED is lit and the DAC is either scanning for a new input signal or playing music, you can switch to manual mode by pressing the SELECT button once. When switching from AUTO to MANUAL MODE the DAC will switch over to the TOSLINK-1 input. If you keep pressing and releasing the SELECT button, the DAC will switch from TOLSINK-1 to TOSLINK-2, and then Coax-1 to Coax-2.

IMPORTANT:

Please note that the SELECT button has a delay to prevent accidental operation of the DAC input select function. So observe at least two seconds in between pressing the SELECT button.

DIMMING MODE

Once the DAC has locked on to an incoming signal, the DIMMING function will automatically be activated.

I DIMMING MODE the active LED will be lower in intensity when a valid audio stream is detected. The selected input LED will light up again if no audio is detected.

SIGNAL PROCESSING MODES

The Bushmaster BMII-30 firmware is capable of processing the incoming digital data in four different ways, which in turn can produce a different sound signature and signal stability from individual source equipment.

How to change signal processing modes:
Press and hold down the SELECT button for about two seconds. Release the SELECT button as soon as the RED STATUS LED lights up. The firmware will now automatically switch to the next data processing option.

- One LED blinks = Mode-1 = DAC chip XTAL Clock signal. Suitable for external clocks
- Two LED blinks = Mode-2 = Signal Data Clock processing Suitable for CD/DVD players, PC
- Three LED blinks = Mode-3 = Signal Data processing Suitable for streamed music, TV
- Four LED blinks = Mode-4 = DATA recovered Clock processing Suitable for everything, but clock tracking errors may occur when the data and the clock are out of sync.

You can program each input to have its own setting for the best playback result in each case.

NOTE: the clock might not be able to find the exact beginning of an audio track when you first switch on the DAC or change to playing files of a different sampling rate. You can correct that by temporarily selecting a different mode so that the clock gets back its bearings.

Program Backup

When you switch the DAC OFF your settings will be saved. So next time you switch the DAC back ON your DAC will start using your saved settings.

RESET MODE
The DAC's operating system might get confused on occasions and refuse to operate correctly when the SELECT button is pressed. If that happens you can try to reboot the MCU (Micro Control Unit) and restore the DAC to the factory default mode.

To reset the DAC:

6. Switch the DAC OFF via the Power button.
7. Wait at least ten seconds.
8. Switch the DAC back ON via the Power button.
9. Whilst the LEDs are each lighting up one by one, press and hold down the SELECT button.
10. When all the LEDs are lit up, let go of the SELECT button.

The DAC's operating system is now reset and any previous error condition should now be cleared.
Note that this function is the same as the AUTO select function.

Fuse Holder
The fuse holder is inside the case close to the DC power connector socket.
The fuse rating is 2 Amps.

Safety Information
The factory supplied AC/DC adapter is suitable for 90 to 270 Volts AC
operation.

Repairs
Do not service or repair this product unless properly qualified.

Fuses
For continued fire hazard protection always replace the internal fuse with
the correct size and type.

Modifications
Do not substitute parts or make any modifications that may create safety
hazards and void the warranty.

Notes on Warranty Repairs

An RN (Returns Number) is required when sending products back. Goods
for repair must be shipped to Beresford ME prepaid and preferably in their
original shipping carton with the RN clearly visible on the exterior of the
packaging. A note should be included giving detailed reasons for the return.