



Key Features

- 8 x 48KHz 16-bit wave players, plus two external audio inputs, all dynamically mixable to 4 audio outputs.
- DSP provides mixing, EQ, delay, limiting, routing etc.
- 4 x 50w class D amplifiers, with diagnostics
- Control system with Ethernet, serial, digital I/O.
- Reliable bare metal firmware – no OS. Boots in seconds.
- Extensive diagnostics, with optional Wi-Fi.
- USB port for easy backup / restore and file download.
- IP65 protected, vibration isolated, wide temperature range, 15Kv ESD protected inputs and outputs.
- MIL and industrial spec components used throughout.
- Tough, compact, light-weight aluminium enclosure.

Introduction

The MAC-4 is an ultra-tough, integrated multi-track audio reproducer, DSP, amplifier, and control system, intended for mobile applications requiring high quality audio playback in the most challenging environments. The device is protected to IP65, operates over a very wide temperature range, and has been designed to withstand high vibration and “G forces”.

It includes easy access front panel MIL and industrial spec connectors, rugged OLED display with navigation buttons, and a USB port for easy backup / restore and media download.

Up to eight 48KHz 16-bit wave players are available, which may be combined for multi-channel files. There are two line-level inputs for external sources such as media players. All sources may be dynamically mixed under program control to the four speaker and line level outputs.

High quality audio DSP's provide EQ, shelving, delays, limiters, compressors, routing, ducking, mixing and more.

Four highly efficient class D amplifiers provide up to 50w / channel into 4Ω loads, with short circuit protection.

The integral control system provides 99 cue lists, each with up to 99 cues. Cues can start audio files, mix and cross-fade audio, adjust DSP settings, switch digital outputs, or transmit data via Ethernet or serial. Cue lists may be triggered via Ethernet, serial, or digital inputs.

An OLED graphic display and navigation wheel provide for local configuration, backup / restore, media download, testing, diagnostics, and viewing an alarm history.

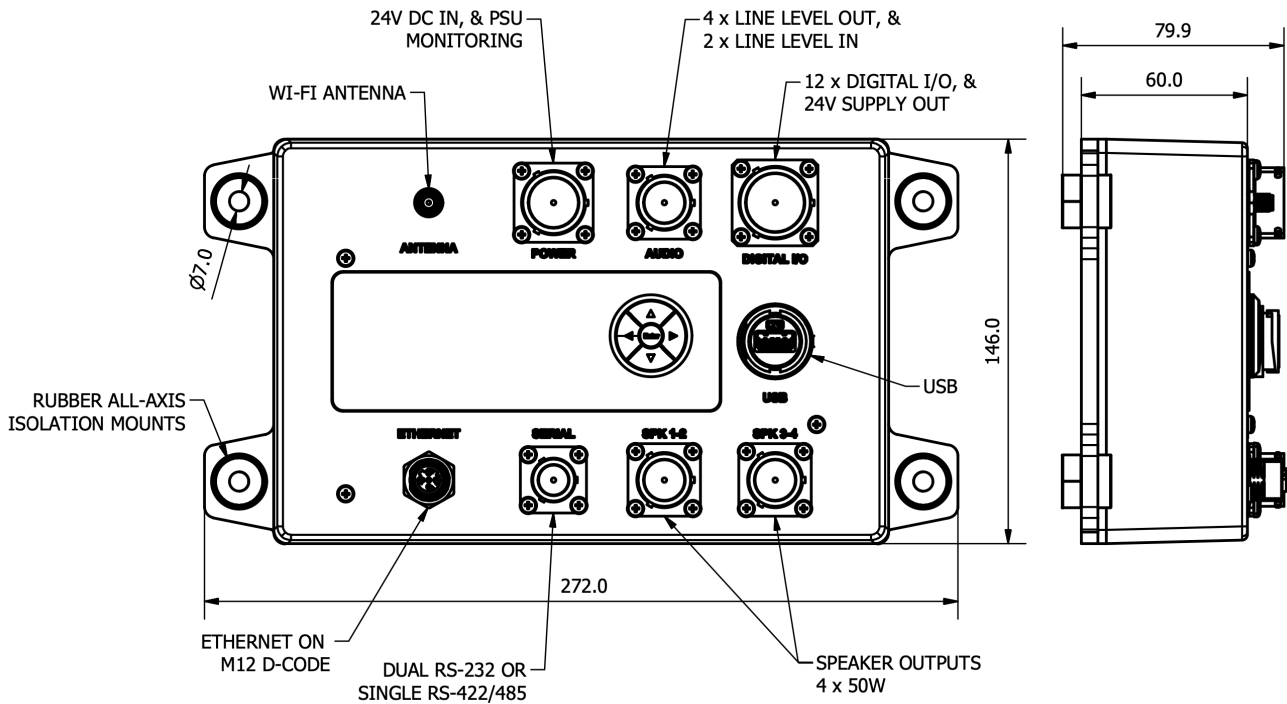
Extensive diagnostics are available, including short / open circuit I/O and speaker wiring, temperature etc. Diagnostics may be transmitted via an optional encrypted Wi-Fi wireless connection, for instant off-board reporting.

The MAC-4 provides the creative capabilities desired by producers and sound designers, coupled with the reliability, durability and diagnostic features demanded by engineers and maintenance technicians.

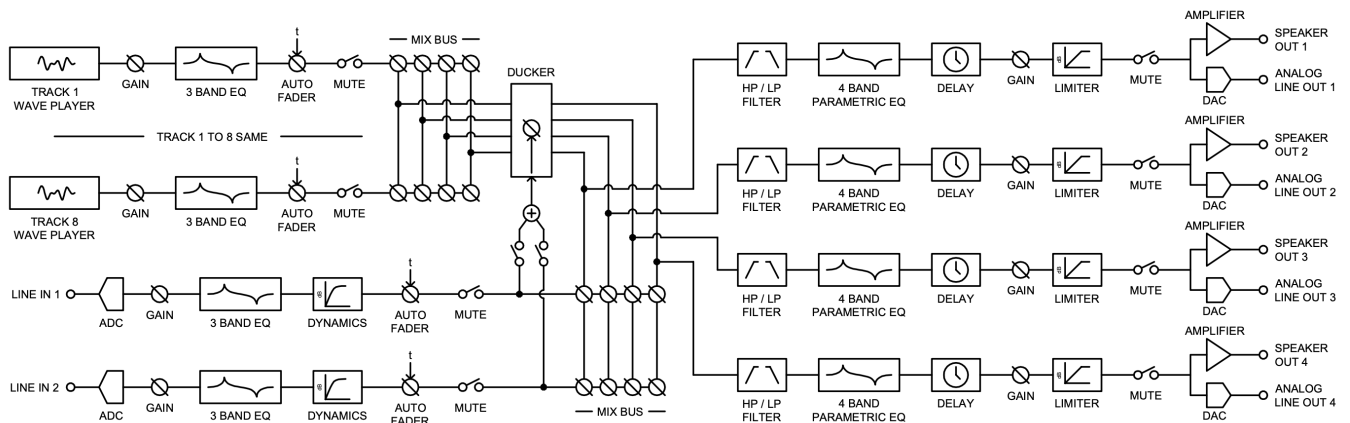
Specifications

Audio	File format	Uncompressed Wave, up to 16 bit 48KHz. Max 4GB each file.
	Channels / Tracks	Max 8. Multi-channel waves consume tracks as required. All tracks sample locked.
	Line level outputs	4 un-balanced line level signals.
	Line level inputs	2 un-balanced line level inputs, can be mixed with wave files.
	Amplifiers	4 x 50w / channel into 4Ω. Short circuit protected. Speaker open / short diagnostics.
Control	Ethernet	10/100BASE-T for control, programming and media downloads. Protocols include TCP/IP and UDP ASCII, ModBus, P+F IDENT RFID, and others.
	Serial	2 x RS-232 in/out or 1 x RS-422 / 485 in/out.
	GPIO	12 channels can be configured by user as either input or output. Inputs can trigger cue lists. Binary mode available (max 256 cues). 24v sourcing outputs.
Others	User interface	2.8" wide temperature range graphic OLED. Navigation wheel with LED backlight.
	Internal storage	Industrial specification solid state flash drive, 8GB as standard.
	USB port	Accepts standard USB drive, for media downloads and show backup / restore.
	Configuration	Via front panel, web browser, and / or programming software.
Electrical	Power supply	24v DC @ 25W.
Physical	Dimensions	272mm (w) x 146mm (h) x 79.9mm (d), excluding connectors
	Weight	<2Kg.
	Environmental	IP65 protected. -30C to +85C operating range. 12,000 ft altitude. Minimal heat load.

Dimensions & Connectors

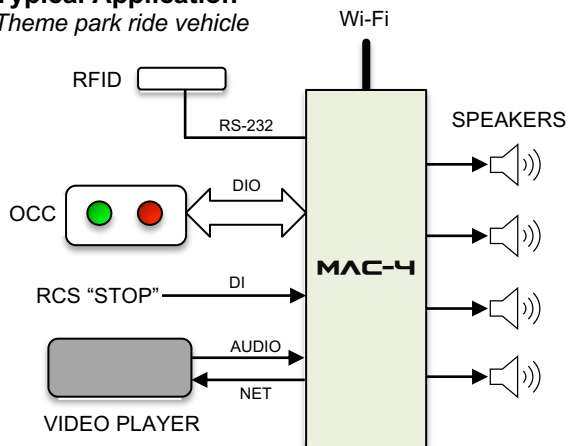


Audio Signal Chain



Typical Application

Theme park ride vehicle



Ordering Information:

Part number:	100-0321
Model:	MAC-4/mm/w
Options:	mm Internal flash memory size, in GB: 02: 2GB, 04: 4GB, 08: 8GB, 16: 16GB.
	w Wi-Fi wireless option. Factory installed.
Lead-time:	Made to order: Contact us for details.
Terms:	50% deposit on order, balance before shipping.
Warranty:	5 years parts and labor. T&C apply.
ROM Price:	US\$7000

All specifications are provisional and subject to change. REV 1