XTEC

INSTALLATION & USER GUIDE

MAC-4

Mobile Audio and Control System

Blank

CONTENTS

SAFETY WARNINGS

1 NOT FOR USE IN SAFETY APPLICATIONS. This device is designed for entertainment and educational applications only.

2 This product is intended for industrial applications, and is not suitable for use in domestic or home environments. Only trained technicians and engineers should operate this device.

3 This product is not designed to be submerged underwater. Submerging the product in a liquid will void the warranty.

4 Never store or operate this product outside the temperature range specified in this manual.

5 Always use a stable regulated power supply with ample current. Never exceed the maximum supply voltage specified in this manual. Power supplies with a voltage less then 10% of the specified supply voltage, or with less current than is required by the application, may result in erratic behaviour, or the device resetting or shutting down.

6 Never exceed the maximum specified control input voltages. Never exceed the maximum specified control output voltages or load current.

7 Never store or operate this product above the maximum altitude specified in this manual.

8 Use a soft damp cloth and mild detergent if you need to clean this product. Never clean this product with a solvent or abrasive cleaning solution. Never use an abrasive pad to clean the product. Disconnect power before cleaning, and protect all exposed connectors and pins.

9 Keep this product and its packing materials away from children. This product is not intended for use by minors.

10 This device includes powerful audio amplifiers, capable of producing high Sound Pressure Levels (SPL) from speakers. You should always adhere to internationally recommended guidelines for maximum SPL, especially for minors.

SYMBOLS & CONVENTIONS

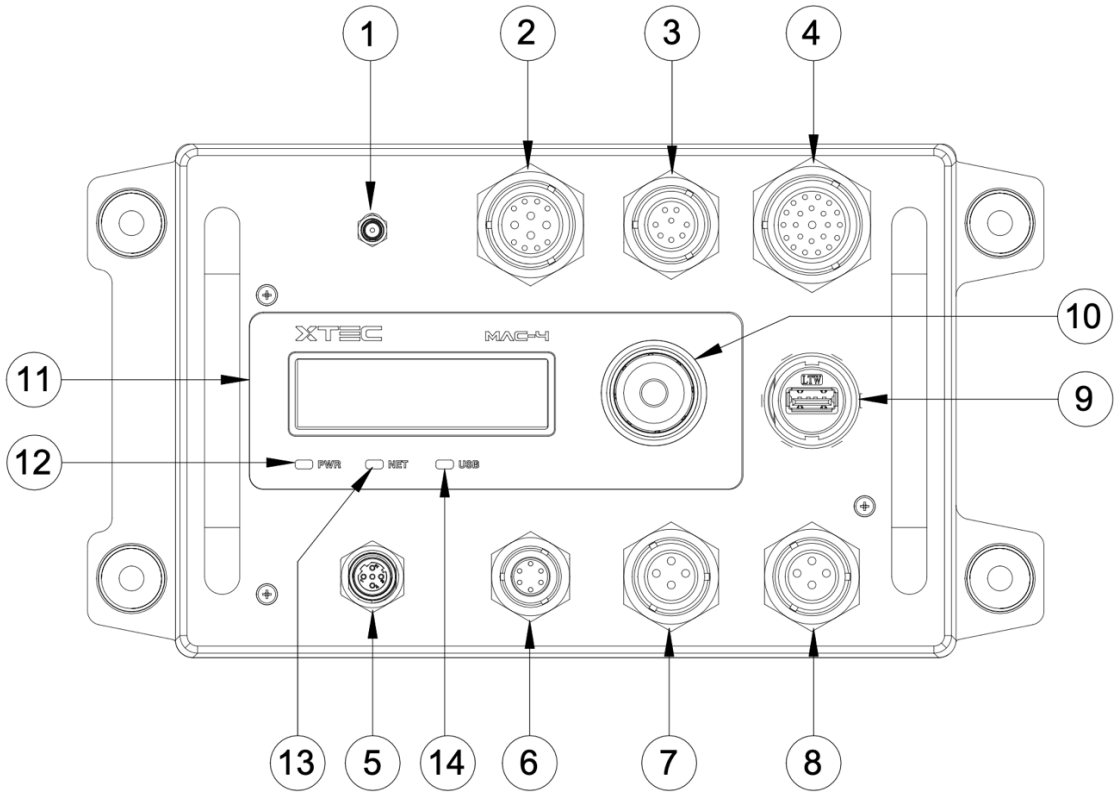
Warnings and critical information. Make sure you read and understand the accompanying notes, and adhere to any instructions provided.

Useful information that may help you better understand and use the product. Take note of any recommendations or suggestions provided.

Note the following regarding fonts and symbols:

- Code or commands are shown in Courier font. Eg: `COMMAND A`

FRONT PANEL



1	Antenna connector. Connect the provided antenna if you intend to use Wi-Fi for monitoring or control.	8	Speakers 3 & 4 output
2	24v DC supply input. Also includes serial comms and GPIO pins for monitoring the power supply.	9	USB type A connector, for flash drive downland / backup.
3	Line level audio inputs and outputs.	10	Menu navigation wheel & status indicator. Flashes red when there is an alarm.
4	12 digital GPIO, each individually assignable as input or output. Also includes 24v DC supply output for powering external devices.	11	2.8” 256 x 64 blue OLED graphic display.
5	Ethernet 100MB on M12 D coded connector	12	Power LED: Off: No supply Red: Power on, booting Green: Booted and operating
6	Serial ports. Either 2 x RS-232, or 1 x RS-422 / 485 (full or half duplex). Also includes 24v DC supply output for powering external devices.	13	Network activity LED: Off: No network Yellow: Link active Green: Data
7	Speakers 1 & 2 output	14	USB activity LED. Flashes during transfer.

GENERAL DESCRIPTION

The XTEC MAC-4 is an integrated audio player and control system, designed for use in mobile applications such as theme park ride vehicles, parade floats, tour buggies, boats, buses, coaches, and other similar applications.

The MAC-4 is configured via the MAC Configurator app, and shows are programmed using the ShowTime application. Up to 99 Cuelists can be programmed, each of which can contain up to 99 cues.

There are 8 uncompressed Wave file players, which can be sample synchronized for multi-channel playback. An audio DSP provides routing, mixing, EQ and other features. There are eight audio outputs: four line-level signals, and four 75w / 4 ohm power amp outputs.

Control interfaces include:

- Ethernet (up to six TCP/IP devices)
- 12 bi-directional digital I/O channels
- RS232 / 422 / 485 serial.

Auxiliary e-Fused 24v DC outputs are available on the digital I/O and serial connectors, for powering external sensors and other devices.

The MAC-4 can report player status, temperatures, power supply, wiring faults and other information via the integrated OLED display, and via a simple protocol over Wi-Fi. Our optional XTRACK application can be used for off-board monitoring.

The device is powered from 12 to 24v DC, and has an operating temperature range of -40C to +80C. It is environmentally protected to IP66, and housed in a lightweight, corrosion-resistant aluminium enclosure.

MOUNTING

The MAC-4 enclosure has four mounting holes, each with a rubber all-axis anti-vibration mount. These rubber bushings incorporate a tubular steel insert, and allow the MAC-4 to be mounted in any orientation.

Use M6 (or ¼") bolts to secure the MAC-4 to a surface or structure. You MUST use large diameter plain washers (provided) on the rubber mounts, as shown in Fig 1.

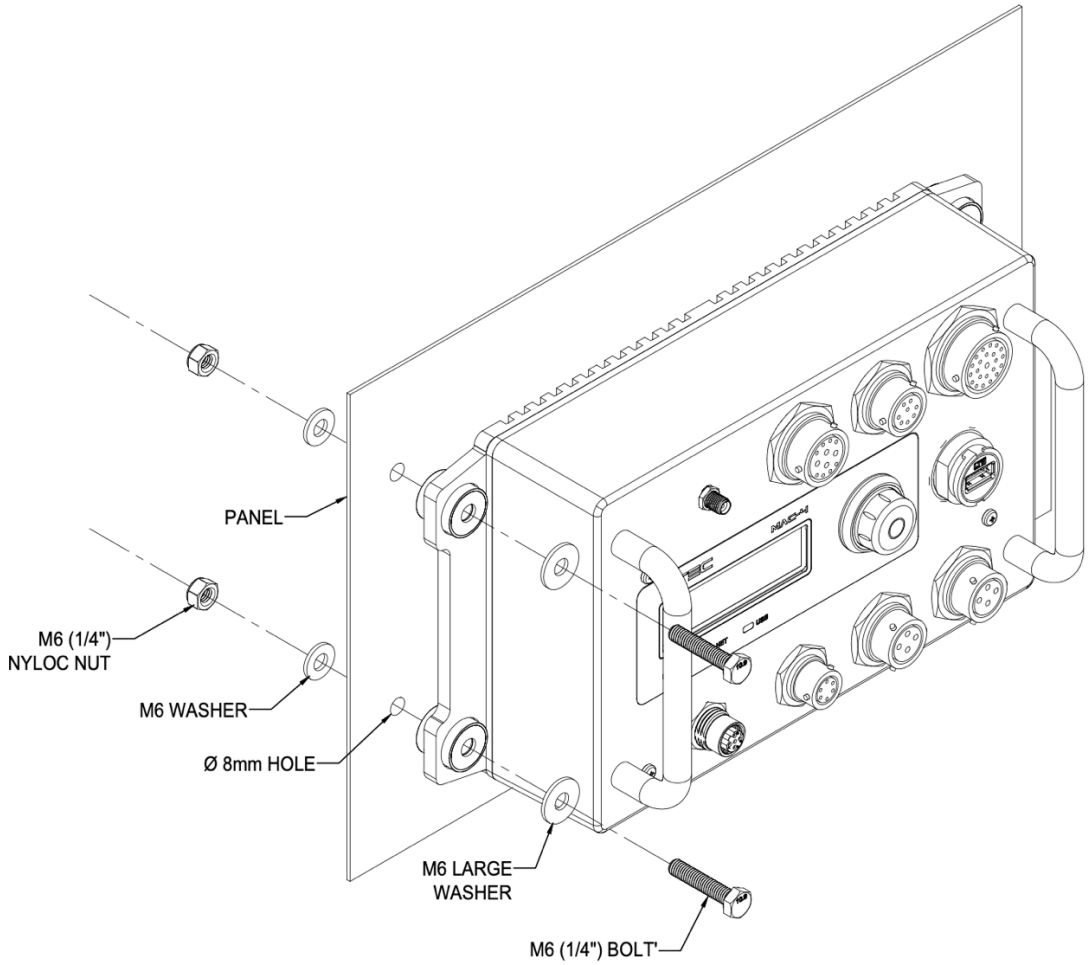


Fig 1

If you wish to mount the MAC-4 *without* the provided isolation bushings, you should use standoffs or other methods to ensure there is a minimum of 6mm (1/4") for air to flow past the heatsink base. See next section for more information.

The provided bushings are two-part, and can be removed by simply pulling them apart.

THERMAL CONSIDERATIONS

The MAC-4 has been designed to operate in ambient air temperatures between -20^{O}C (-4^{O}F) and +45^{O}C (+113^{O}F).

There are no special requirements when the ambient operating temperature is < 10^{O}C, other than danger of brittle cables and solder joints. At higher temperatures, please take note of the following:

- The bottom cover of the MAC-4 is a heatsink for the internal power supply and amplifier. The supplied rubber mounts not only provide vibration isolation, but they also provide space for air to flow across this heatsink.
- Never obstruct airflow from around the heatsink. If the MAC-4 is mounted inside another enclosure, ensure there is adaquate ventillation to the enclosure.
- At high ambient temperatures (>30^{O}C), forced air ventillation (fans) may be required to blow air onto the heatsink. At high temperatures it is recommended (where possible) to mount the MAC-4 vertically, as shown in Fig 2.

If the internal temperature reaches high levels, the MAC-4 will raise an alarm. If the temperature continues to increase to dangerous levels, the MAC-4 may take actions to protect itself, such as lowering amplifier power, or even shutting down. These protections will self-reset once the internal temperature has reduced and power is cycled.

The MAC-4 has several internal temperature sensors, which monitor the power supply, the amplifiers, and the main processor board. These temperature readings can be viewed using the OLED display, and on the XTEC Sentinel application. See later in this manual for more information.

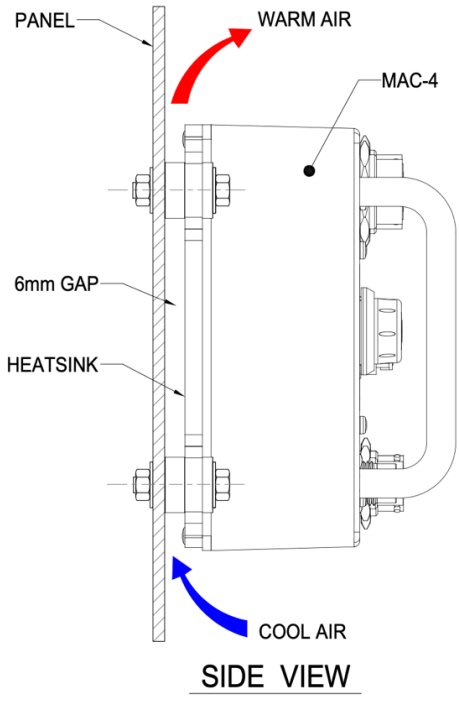


Fig 2

POWER SUPPLY

Voltage

The MAC-4 nominal supply range is 12 to 24V DC. If the supply drops below 10V the MAC-4 will safely shut down. It will automatically re-start once the supply is above approximately 10.7V.

Absolute maximum supply voltage is 26.5V. Connecting a power supply above this voltage will likely permanently damage the MAC-4, and void the warranty.

Note: The MAC-4 is protected against brief high voltage spikes, such as from lightning strikes or ESD. These spikes are usually milliseconds or less in duration, and will be shunted by an internal TVS diode.

*This TVS diode is primarily intended to protect against brief voltage spikes, and reacts as fast as 3 Pico seconds. It is **not** intended to protect against sustained over voltage!*

The MAC-4 power supply includes reverse polarity protection.

Current Consumption

The MAC-4 consumes less than 4A @ 24v DC if the internal audio power amplifiers *are not* being used. This would include the current consumed by turning on all 12 digital outputs at full current.

However, if the internal audio power amplifiers *are* being used, then current consumption can increase dramatically. The amount is difficult to calculate, as it depends both on the “volume” (quiet music uses less power than loud music), and on the type of audio (dialog uses far less power than heavy metal music).

In addition, the *average* and *peak* current can be very different: When playing a typical thrill ride audio soundtrack at high amplifier power on all four channels, the one-second average current consumption is in the low single digits, but fast peaks can reach up to 15A.

Testing with the actual audio soundtrack is the only sure way to ascertain the real-world current consumption for a particular application. If you would like us to test current consumption with your soundtrack, let us know!

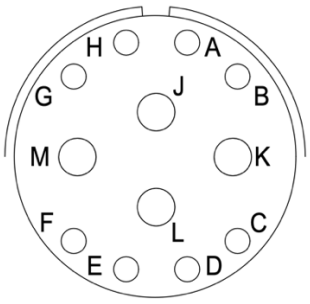
The power supply to the MAC-4 MUST be protected with an external DC circuit breaker or fuse. The following are some general guidelines:

- If you are NOT using the internal audio power amplifiers, 5A DC protection is fine.
- If you ARE using the internal audio power amplifiers, but the audio is not too loud (say dialog or soft music), use 10A DC slow-blow protection.
- If you ARE using the internal audio power amplifiers, and the audio is LOUD and HOT, use 20A DC slow-blow protection.

CONNECTORS & INTERFACES

Power

12-24v DC power supply input to MAC-4. This connector also has pins for control and data (reserved for future use, do not connect).



MIL-DTL-26482 – Shell size 14, 12 Pins (14-12P)

Example mating cable connector: Amphenol PT06A-14-12S

Pin	Function
A	RS485 A (Future use) DO NOT USE
B	RS485 B (Future use) DO NOT USE
C	Digital in 1 (max 24v DC) DO NOT USE
D	Digital in 2 (max 24v DC) DO NOT USE
E	Not connected
F	Not connected

Pin	Function
G	Ground
H	Ground
J	+12-24v DC Supply Input
K	
L	Ground (0v)
M	

- Pins G & H are internally linked, and either or both pins can be used.
- Pins J & K are internally linked, and either or both pins can be used. Both pins should be used in parallel when operating the in-built power amplifiers at high levels.
- Pins L & M are internally linked, and either or both pins can be used. Both pins should be used in parallel when operating the in-built power amplifiers at high levels.

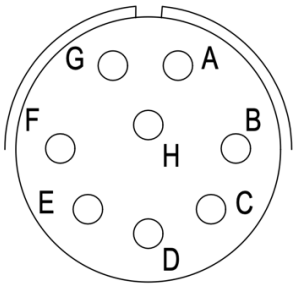
The J, K, L, M pins on this connector are rated maximum 13A DC each.

If you are using the internal power amplifiers at mid to high power, we highly recommend you:

- Connect the positive supply via BOTH pins J and K in parallel
- Connect the ground return via BOTH pins L & M in parallel

Audio

Unbalanced line level audio inputs and outputs.



MIL-DTL-26482 – Shell size 12, 8 Socket (12-8S)

Example mating cable connector: Amphenol PT06A-12-8P

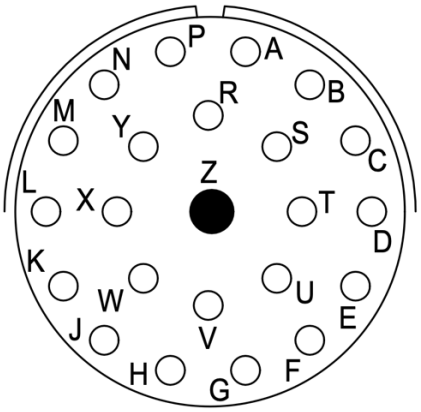
Pin	Function
A	Line Out 1
B	Line Out 2
C	Line Out 3
D	Line Out 4

Pin	Function
E	Line In 1
F	Line In 2
G	Ground
H	Ground

- Pins G & H internally linked, and connected to the common ground.

Digital I/O

The 12 digital I/O channels can be individually set as either inputs or outputs, as required by the application. This configuration is performed by the MAC Configurator application (see later in this manual for more information). The digital I/O is *not* isolated – if you require isolation you should add relays or other devices.



MIL-DTL-26482 – Shell size 16, 23 Sockets (16-23S)

Example mating cable connector: Amphenol PT06A-16-23P

Pin	Function
A	DIO 1
B	DIO 2
C	DIO 3
D	DIO 4
E	DIO 5
F	DIO 6
G	DIO 7
H	DIO 8
J	DIO 9
K	DIO 10
L	DIO 11
M	DIO 12

Pin	Function
N	+V OUT
P	+V OUT
R	+V OUT
S	+V OUT
T	+V OUT
U	+V OUT
V	Ground
W	Ground
X	Ground
Y	Ground
Z	Ground

- Pins N to U internally linked, and connected to the MAC-4 incoming supply, via an electronic fuse
- Pins V to Z internally linked, and connected to the common ground.
- The “+V OUT” pins are supply outputs, at approximately the same voltage as the MAC-4 supply input. They are protected with a 1.2A eFuse, and shared with all other “+V OUT” pins on other connectors.

Digital Outputs

Channels configured as digital outputs have the following specifications and features:

- High side (sourcing) outputs. When on, a channel outputs 12-24v DC (depending on supply voltage)
- 1.2A total current limit for all outputs. Protected by electronic fuse, with alarm reporting
- Over current and short circuit protection
- Inductive load capable

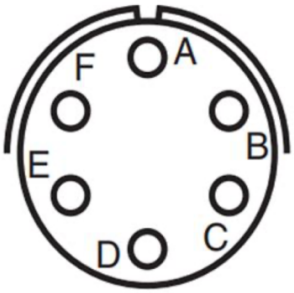
Digital Inputs

Channels configured as digital inputs have the following specifications and features:

- Sinking (apply voltage) inputs, 12-24v DC (nominal), absolute max +65v
- IEC 61131-2 Type 1 and 3. Minimum 8v @ 2.3mA to turn on
- Short circuit and over voltage protected

Serial

Either dual RS-232, or single RS422/485 serial communications.



MIL-DTL-26482 – Shell size 10, 6 Socket (10-6S)

Example mating cable connector: Amphenol PT06A-10-6P

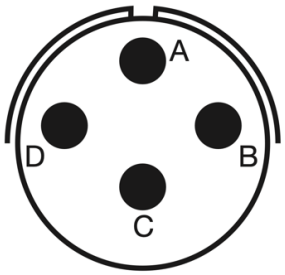
The wiring on this connector will vary depending on how the serial port is configured:

Pin	Mode = RS-232	Mode = RS422/485 Full Duplex	Mode = RS-485 Half Duplex
A	RX port 1	RX B-	Not used
B	RX port 2	RX A+	Not used
C	TX port 1	TX B-	D-
D	TX port 2	TX A+	D+
E	+V OUT		
F	Ground (0v)		

- The “+V OUT” pin is a supply output, at approximately the same voltage as the MAC-4 supply input. It is protected with a 1.2A eFuse, and shared with all other “+V OUT” pins on other connectors.
- In RS422 / RS485 mode, the MAC-4 is a 1/8th load on the bus.
- To learn about RS232, RS422 and RS485 modes please search the internet or ask a friendly AI.

Speakers

There are two identical amplifier speaker connectors, labelled “SPK 1/2" and “SPK 3/4”. Each connector has two speaker outputs.



MIL-DTL-26482 – Shell size 12, 4 Socket (12-4S)

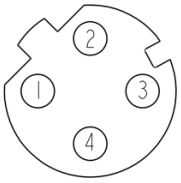
Example mating cable connector: Amphenol PT06A-12-4P

Pin	SPK 1/2 connector	SPK 3/4 connector
A	Speaker 1-	Speaker 3-
B	Speaker 2-	Speaker 4-
C	Speaker 1+	Speaker 3+
D	Speaker 2+	Speaker 4+

Never connect the amplifier speaker output wires together (even the negative outputs).
Never connect any amplifier speaker wire to ground or common.
The MAC-4 amplifier outputs are Class D BTL, which has no “ground” or common. Both the + and – pins are driven and have voltage.

Ethernet

Four pin M12 D coded connector for 10/100BASE-T Ethernet networking.

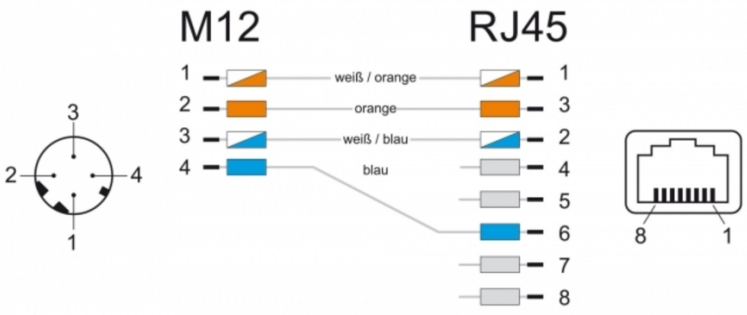


4 pin M12-D Female

Pin	Signal
1	TX+
2	RX+
3	TX-
4	RX-

Note: The MAC-4 network interface is NOT Auto-MDIX. If your destination device is also not Auto-MDIX, you will need to ensure you wire the MAC-4 transmit pins to the destination device receive pins, and the MAC-4 receive pins to the destination device transmit pins.

The following diagram shows how to make a 4 pin M12-D to RJ45 Ethernet cable:



Antenna

This is a standard 50Ω RP SMA female connector, for a 2.4GHz WiFi antenna. The type of antenna depends on the application (eg; maybe a “whip” type, or perhaps a cable with an external high-gain antenna).

RP SMA Female connector

Your antenna or extension cable must be 2.4GHz **RP SMA Male**.

USB

USB Type A connector, for use with a Flash memory stick or external SSD. The MAC-4 is a Host device, so this connector provides a 5v DC output to power the storage device.

MIL-DTL-26482 Contact Ratings

In the above drawings, the MIL-DTL-26482 contact ratings are as follows:

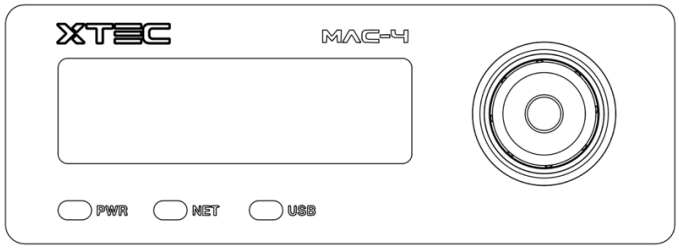
Drawing Symbol	Contact Size	Current Rating
●	16	13A
○	20	7.5A

For the complete specifications of these connectors, please refer to:

https://landandmaritimeapps.dla.mil/Programs/MilSpec/ListDocs.aspx?BasicDoc=MIL-DTL-26482

USER INTERFACE

Controls



The front panel user interface of the MAC-4 includes a wide temperature range OLED graphic display, three LED indicators, and an encoder wheel.

Encoder Wheel

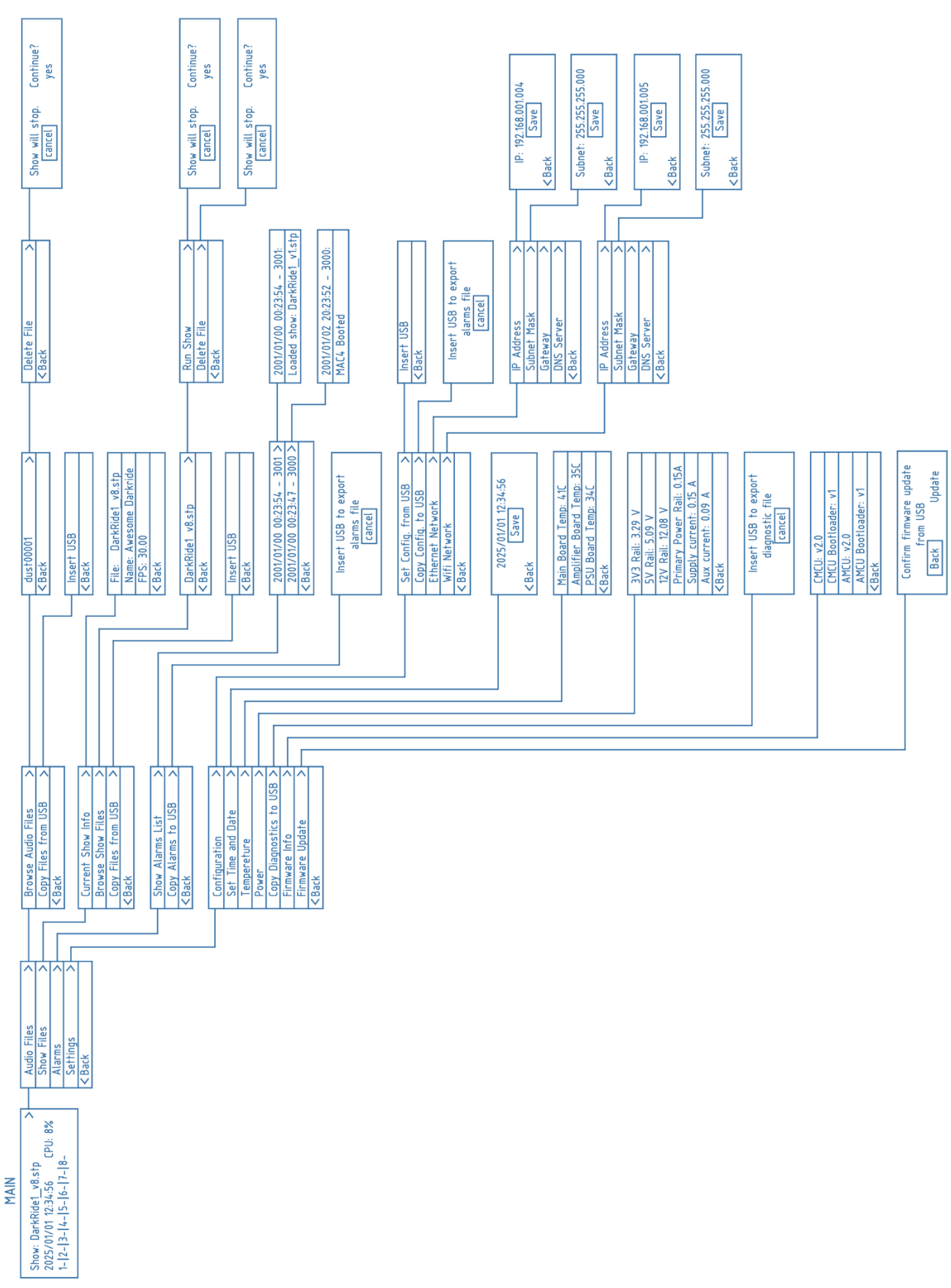
- Rotate the encoder wheel to move through items in the menu, and to adjust data values. Turn the encoder clockwise to move down or right in a menu, or to increase a data value. Turn the encoder anticlockwise to move up or left in a menu, or to decrease a data value.
- Click (press) the encoder wheel to access a menu item, or to confirm a data entry.
- The encoder wheel is illuminated, to make it easy to find in dark environments. It will flash red if there is an active alarm (see later in this manual for information about alarms).
- If the MAC-4 screensaver is displayed, click the encoder wheel once to get to the main menu.

LED Indicators

There are three LED indicators on the front panel:

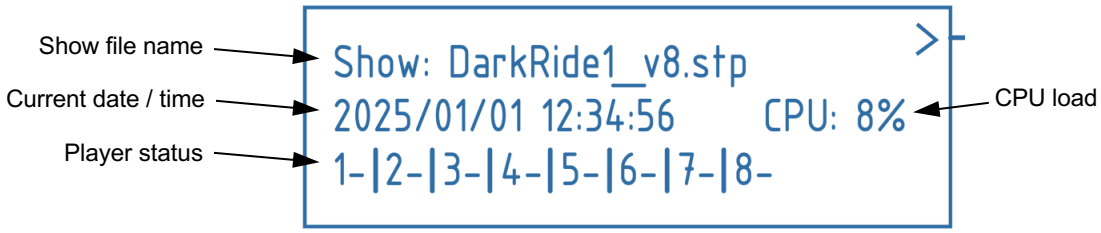
<table>
<tr><th>LED</th><th>Description</th></tr>
<tr><td>PWR</td><td>Indicates power and general health status of the MAC-4.
<table>
<tr><th>State</th><th>Meaning</th></tr>
<tr><td>Off</td><td>No power.</td></tr>
<tr><td>Red</td><td>MAC-4 has power. 3.3v internal supply rail is on.</td></tr>
<tr><td>Flash Red / Amber</td><td>Internal hardware fault. Return unit for servicing.</td></tr>
</table></td></tr>
<tr><td>NET</td><td>Indicates status of Ethernet connection.
<table>
<tr><th>State</th><th>Meaning</th></tr>
<tr><td>Off</td><td>No Ethernet connection.</td></tr>
<tr><td>Yellow</td><td>Link active.</td></tr>
<tr><td>Flash Yellow / Green</td><td>Active communication</td></tr>
</table></td></tr>
<tr><td>USB</td><td>Illuminates when a USB drive is detected in the front panel USB socket.</td></tr>
</table>

Menu Tree


MAIN
Show: DarkRide1_v8.stp
2025/01/01 12:34:56
CPU: 8%
1-|2-|3-|4-|5-|6-|7-|8-
Audio Files
Show Files
Alarms
Settings
Back
Browse Audio Files
Copy Files from USB
Back
dust00001
Back
Delete File
Back
Show will stop. Continue?
cancel
yes
Current Show Info
Browse Show Files
Copy Files from USB
Back
Insert USB
Back
File: DarkRide1 v8.stp
Name: Awesome Darkride
FPS: 30.00
Back
Show Alarms List
Copy Alarms to USB
Back
DarkRide1 v8.stp
Back
Run Show
Delete File
Back
Show will stop. Continue?
cancel
yes
Insert USB
Back
2001/01/00 00:23:54 - 3001
2001/01/00 00:23:47 - 3000
Back
2001/01/00 00:23:54 - 3001:
Loaded show: DarkRide1_v1.stp
2001/01/02 20:23:52 - 3000:
MAC4 Booted
Insert USB to export alarms file
cancel
Configuration
Set Time and Date
Temperature
Power
Copy Diagnostics to USB
Firmware Info
Firmware Update
Back
Set Config from USB
Copy Config to USB
Ethernet Network
Wifi Network
Back
Insert USB
Back
Insert USB to export alarms file
cancel
2025/01/01 12:34:56
Save
Back
IP Address
Subnet Mask
Gateway
DNS Server
Back
IP: 192.168.001.004
Save
Back
Subnet: 255.255.255.000
Save
Back
IP Address
Subnet Mask
Gateway
DNS Server
Back
IP: 192.168.001.005
Save
Back
Subnet: 255.255.255.000
Save
Back
Main Board Temp: 41C
Amplifier Board Temp: 35C
PSU Board Temp: 34C
Back
3V3 Rail: 3.29 V
5V Rail: 5.09 V
12V Rail: 12.08 V
Primary Power Rail: 0.15A
Supply current: 0.15 A
Aux current: 0.09 A
Back
Insert USB to export diagnostic file
cancel
CMCU: v2.0
CMCU Bootloader: v1
AMCU: v2.0
AMCU Bootloader: v1
Back
Confirm firmware update from USB
Back
Update

Top Level Display

This is the top-level display. It provides general information about the system:

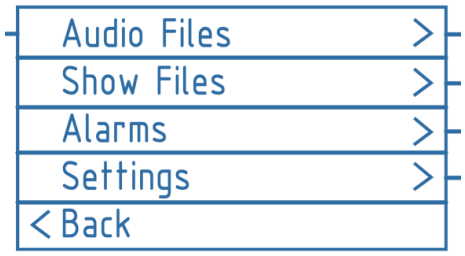


Show file name	The name of the currently loaded project file
Current date / time	The date time in the internal Real Time Clock. Used for logging alarm message times. See below for information on how to update the date and time.
Player status	Indicates the status of each of the MAC-4 mono audio players. The symbol displayed after each player number indicates the status:
CPU load	Overall processor load, as a percentage. 100% would indicate the processor is overloaded, and cues may be delayed or dropped. If this happens, it probably means there are too many cues in a single frame: Try spreading the cues across multiple frames instead.

-	No audio file loaded
■	Audio file loaded and stopped
▶	Audio file playing

Click the encoder wheel to get to the Main Menu.

Main Menu



Audio Files	Audio file operations. These are the sound files that are played.
Show Files	Show file operations. These are the show control files.
Alarms	View system alarms, and copy to USB
Settings	Configuration, device information and firmware options
Back	Return to top level display

Audio Files Menu

Browse Audio Files	View audio files currently stored on the internal media drive. You can also delete files using this option.
Copy Files from USB	Copy an audio file from an external USB drive to the internal media drive.
Back	Return to main menu

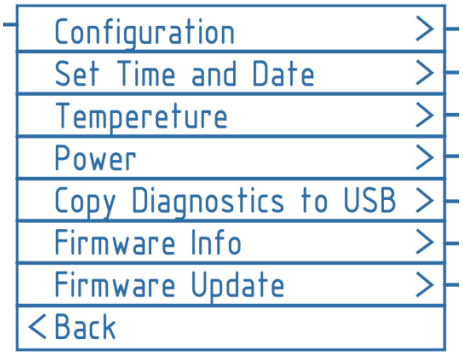
Show Files Menu

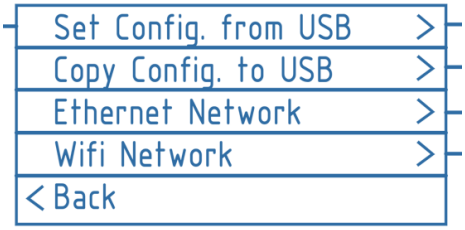
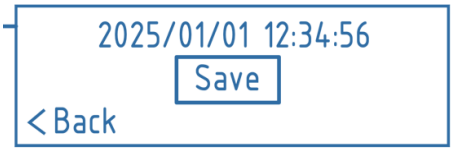
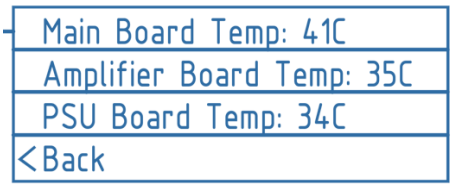
Current Show Info	Display information about the currently loaded show project file
Browse Show Files	View show project files currently stored on the internal media drive. You can also delete files using this option.
Copy Files from USB	Copy a show project file from an external USB drive to the internal media drive.
Back	Return to main menu

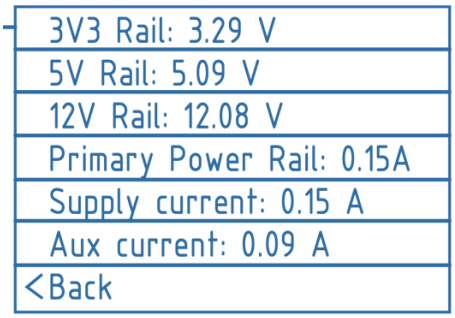
Alarms Menu

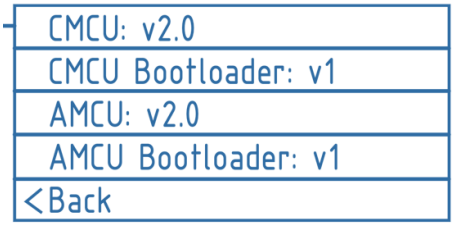
Show Alarms List	Display the alarms history. Each alarm has a date / time, and a code number. See the appendix of this manual for a full list of alarm codes.  Use the encoder wheel to select an alarm, and click on it to get a more detailed description. For example: 
Copy Alarms to USB	Save the alarms history to an external USB drive.
Back	Return to main menu

Settings Menu



Configuration	Displays a sub-menu of configuration options:  • Set Config from USB: Load MAC-4 configuration settings from a USB drive. • Copy Config to USB: Save the current MAC-4 configuration settings to a USB drive. • Set the IP address, subnet mask, gateway and other network setting for the wired Ethernet port. • Set the IP address, subnet mask, gateway and other network setting for the WiFi port.
Set Date and Time	Set the date and time of the MAC-4 internal Real Time Clock. Use the encoder wheel to set the data, and then select Save. 
Temperature	View the real-time temperature readings inside the MAC-4 
Power	View real-time voltages and current consumption



Copy Diagnostics to USB	Copy a special diagnostics file to an external USB drive. This may be requested by XTEC for diagnostics and debugging purposes 
Firmware Info	Displays the current MAC-4 firmware version numbers 
Firmware Update	Updates the MAC-4 firmware from an external USB drive 
Back	Return to main menu

CONFIGURATION

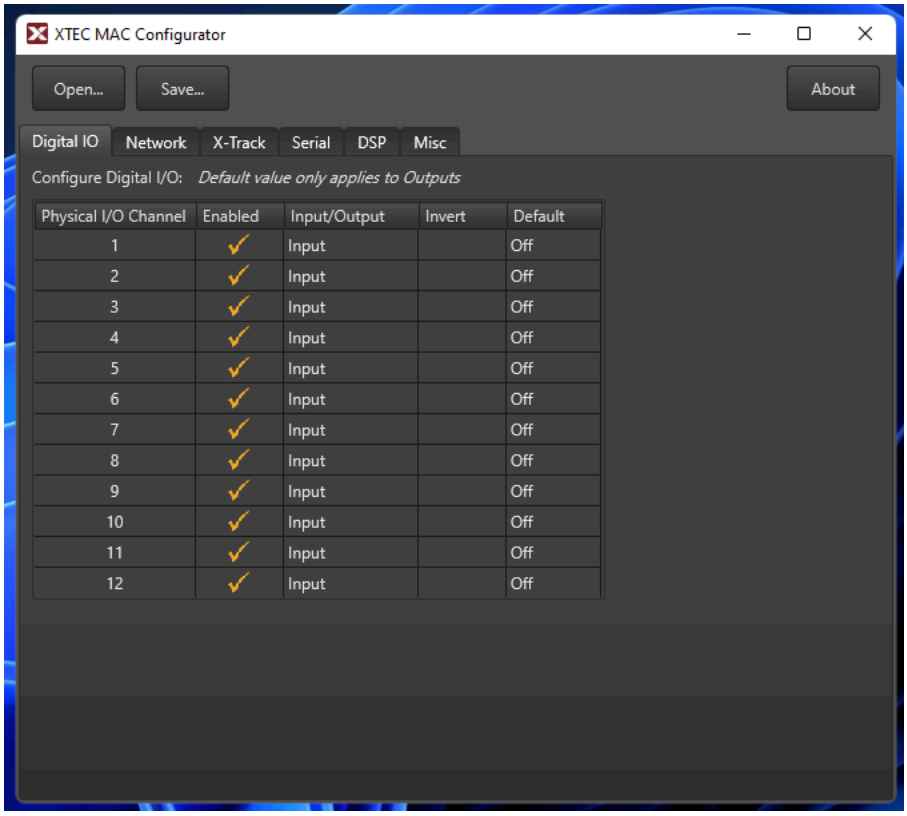
When the MAC-4 boots it reads a “config” file stored in the internal flash memory, to setup the hardware, audio DSP, and other system-wide parameters. These are global settings such as Digital I/O port direction, serial port mode, IP addresses, and DSP setup. Normally the Config file won’t change once it has been set up for a particular application.

The Config file is created using an application called MAC Configurator (free download from www.xtec-ind.com), and then saved to the MAC-4 via USB or FTP.

MAC Configurator App

In addition to the Open and Save buttons on the toolbar, there are tabs for the different options.

Digital IO Tab



The MAC-4 has a total of 12 digital I/O, each of which can be individually set to be an input or and output. The settings are as follows:

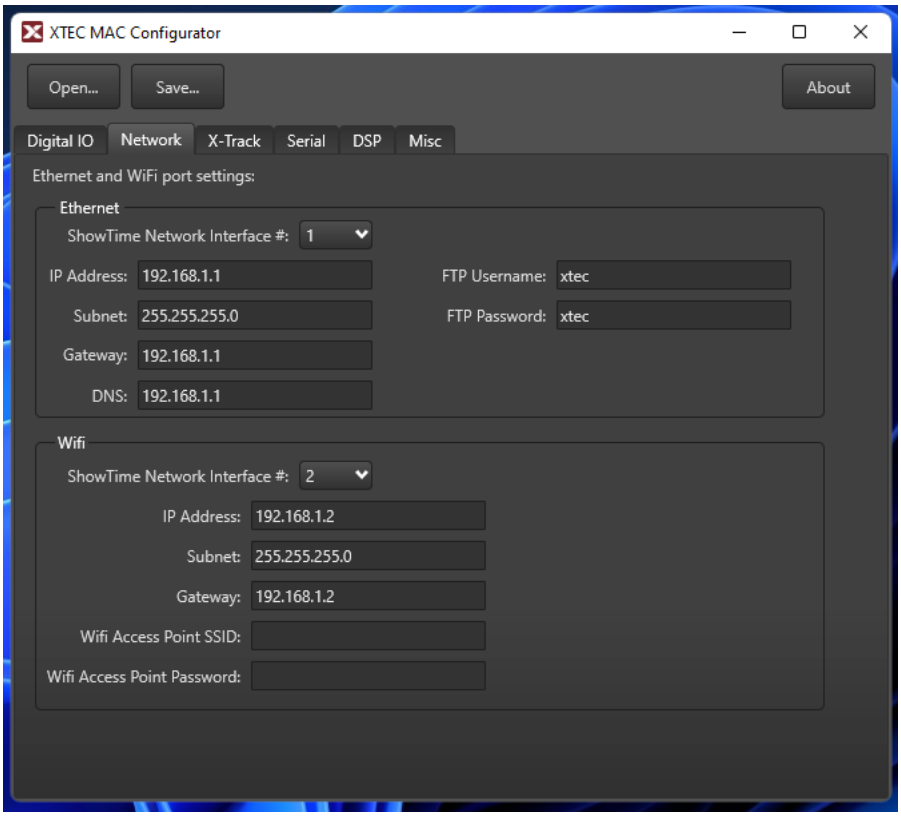
- Physical I/O Channel: The hardware I/O channel.
- Enabled: When checked this I/O channel will be operational.
- Input/Output: Select the port direction, Input or Output.
- Invert: This will swap the state of the channel. The following table explains how Invert works:

Channel Direction	Invert	Description
Input	OFF	ShowTime sees the actual state of the input (ON = ON, OFF = OFF)
Input	ON	ShowTime sees the opposite state of the input (ON = OFF, OFF = ON)

Output	OFF	The physical output state is the same as the ShowTime output state (ON = ON, OFF = OFF)
Output	ON	The physical output state is the opposite of the ShowTime output state (ON = OFF, OFF = ON)

- Default: Only applies when the channel is an Output. If this setting is OFF, then the channel will turn OFF after booting or a reset. If this setting is ON, then the channel will turn ON after booting or a reset.

Network Tab



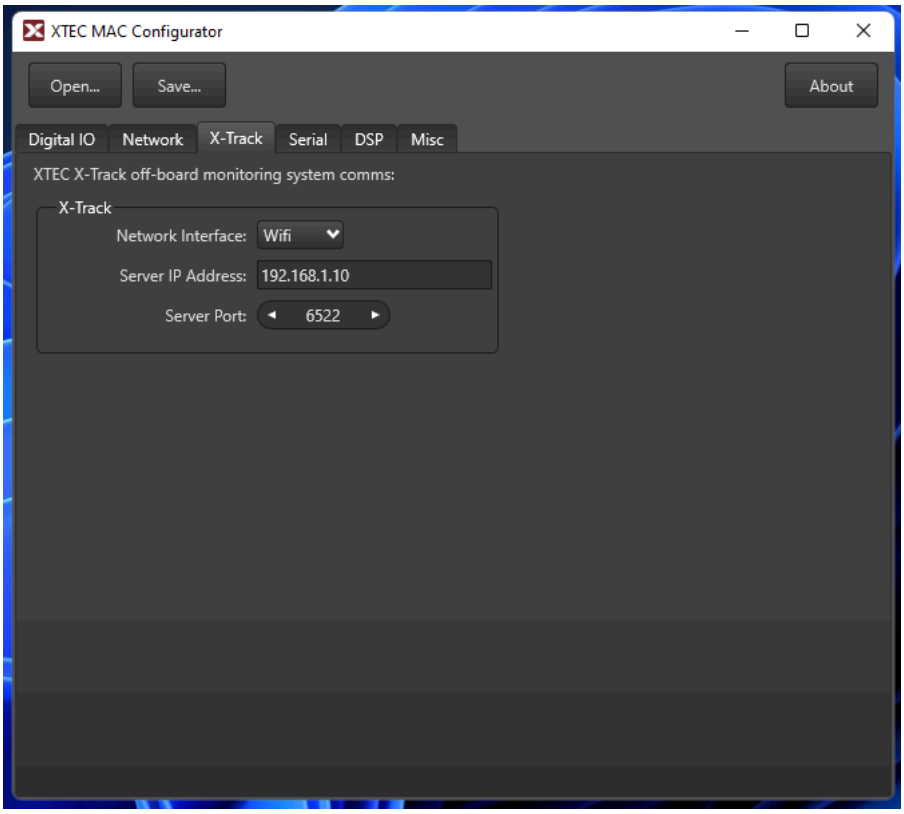
The settings on the Network tab are used to configure the wired Ethernet port, and the WiFi port. In ShowTime these interfaces are referenced by a number, which can be set in this page.

The other settings should be familiar: IP address, subnet mask, Gateway and DNS are standard network settings.

The FTP Username and Password is used for downloading media and show files.

Note the MAC-4 WiFi connection uses WPA2 security, and hence requires a password.

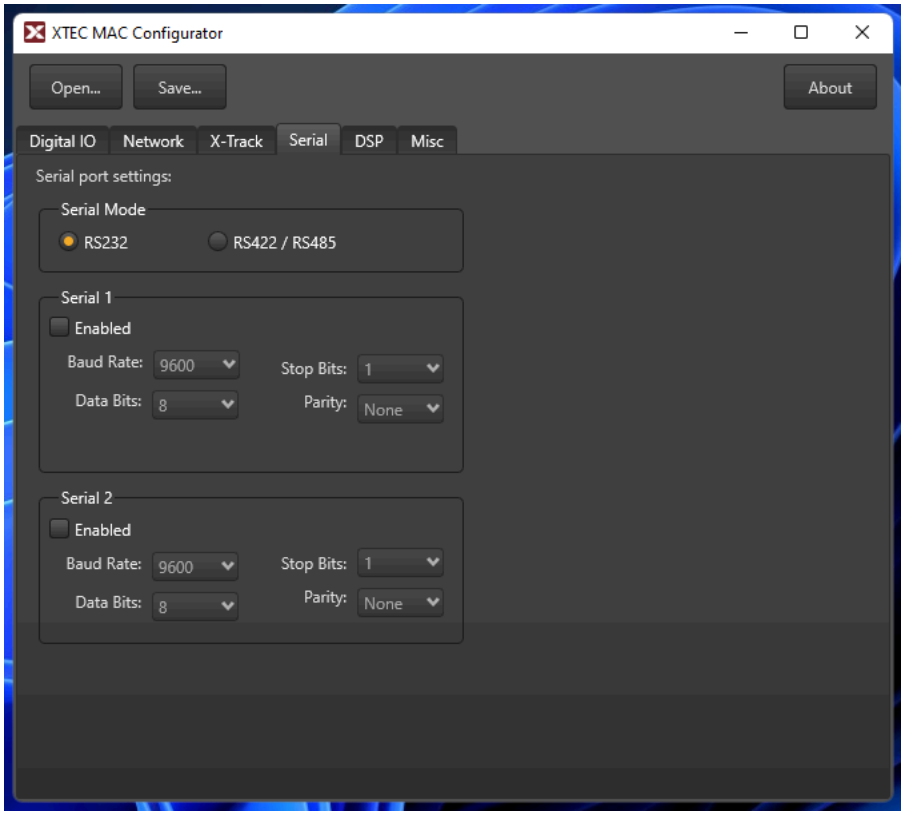
X-Track Tab



X-Track is the optional off-board monitoring application for the MAC-4. Multiple MAC-4's can connect to X-Track via WiFi, and provide real-time status, alarms and remote control. For more information on X-Track please see www.xtec-ind.com.

This tab allows you to set the interface (always WiFi for now), and the IP address and port for the X-Track server. Note you must use static IP addresses.

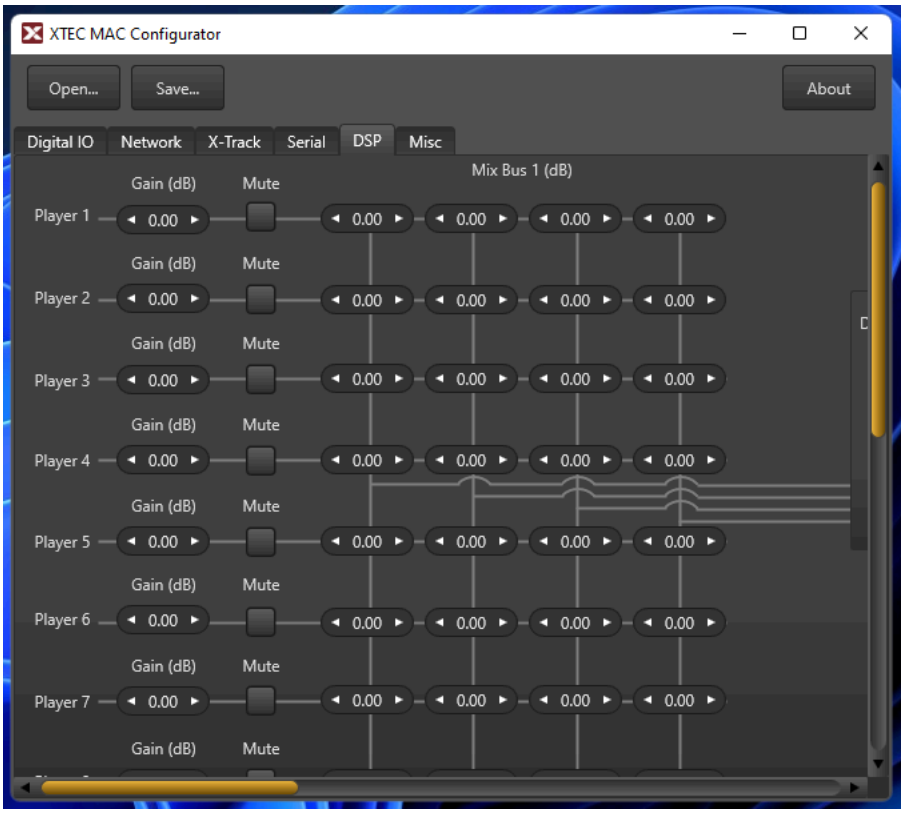
Serial Tab



The MAC-4 has one or two serial ports, depending on the Serial Mode:

- In RS232 mode, there are two independent serial ports. You can Enable, set baud rate, data and stop bits, and Parity as required. In ShowTime these are fixed as serial ports 1 and 2.
- In RS422 / RS485 mode there is one serial port. In addition to the standard serial port settings above, you can also set the Duplex drop down box as either:
- Full: Serial port compatible with 4-wire RS422 and RS485 full duplex, or
- Half: Serial port is 2-wire RS485, half duplex

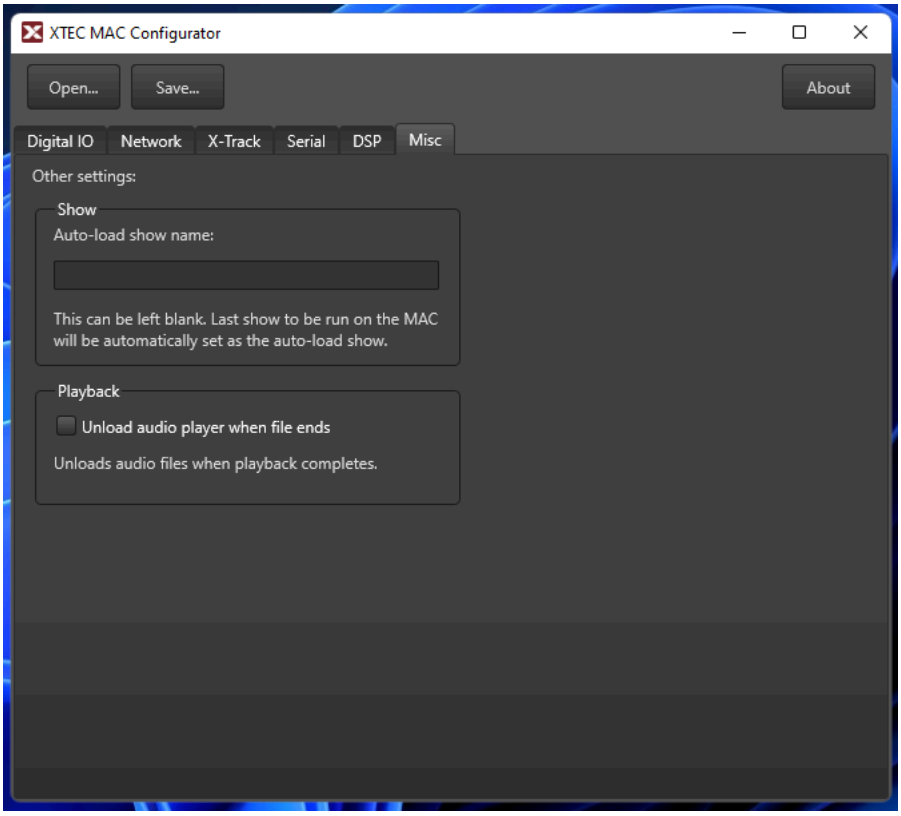
DSP Tab



Note: You will probably want to enlarge the Configurator window to make it easier to navigate the DSP tab.

The MAC-4 features a high-quality audio DSP, for routing, mixing, Eq, ducking and other functions. Cues can be programmed in ShowTime to adjust volume of audio tracks, which allows “live” mixing to be programmed as part of the show. All other DSP setup is performed in this tab.

Misc Tab



This tab has some miscellaneous settings:

- Show: Can be used to set an initial auto-run show. This is not normally required, as the last show to be run will become the new auto-run show when the MAC-4 boots.
- Playback: If this is checked, audio files will be specifically unloaded after they have played. This is not normally required, but may be desirable in certain circumstances.

Programming

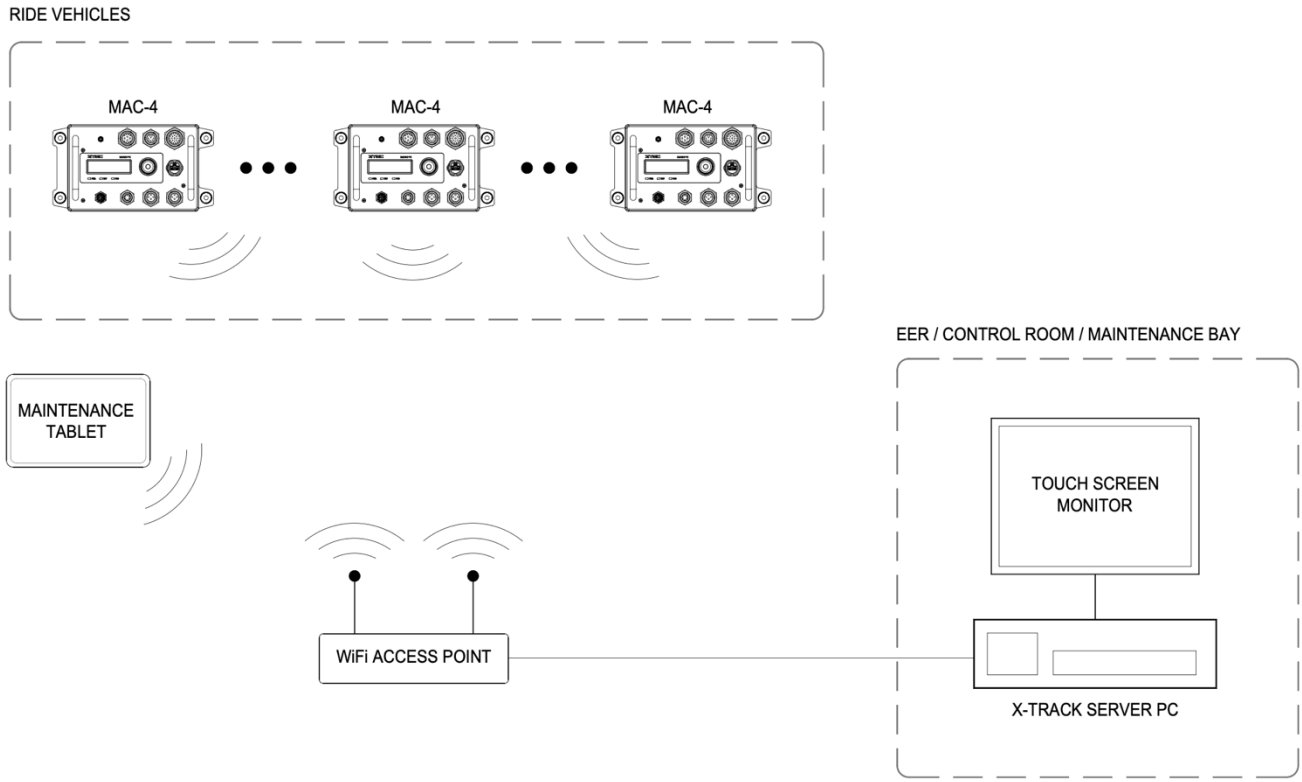
The MAC-4 is programmed using XTEC ShowTIme Editor. This free application runs on a Windows or Mac computer, and allows “Cues” (commands) to be programmed into “Cuelists”. Cues are available to do things like switch on a digital output, send a serial string, play an audio file, and adjust the DSP.

Cuelists can be triggered by a variety of methods, such as TCP/IP messages or digital inputs.

For more information about ShowTime, please visit www.xtec-ind.com.

X-Track

XTEC X-Track is an application that runs on an off-board PC, for monitoring and control of one or more MAC-4's via WiFi. It is normally used in applications such as a dark ride, where multiple MAC-4's must be remotely monitored throughout the day.



Typical X-Track System

X-Track will display status updates, alarms, and selected user variables. It can also remotely trigger Cuelists, and execute re-boot or shutdown tasks. You can also connect tablets or other PC's to X-Track, to provide additional monitoring and maintenance options.

For more information on X-Track, please visit https://www.xtec-ind.com/X-Track

WARRANTY

Limited Warranty

This product is warranted to be free from defects in materials and workmanship under normal use for a period of four (4) years from the date of purchase. This Limited Warranty is valid only for the original purchaser and is non-transferable.

During the warranty period, if this product is found to be defective, we will repair or replace it, at our discretion, without charge. This warranty does not cover damage caused by misuse, abuse, accidents, unauthorized repairs, or alterations.

To obtain warranty service, please contact our customer service team and provide proof of purchase. We reserve the right to request the return of the defective product for inspection. The customer shall be responsible for all costs associated with returning the product to our facility. If the product is confirmed to qualify for warranty repair, we will pay all costs to return the repaired or replaced item to the customer.

This Limited Warranty is the sole and exclusive warranty for the product, and no other warranties, express or implied, are made. In no event shall we be liable for any incidental, consequential, or special damages.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or country to country.

For product support please visit

www.xtec-ind.com

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