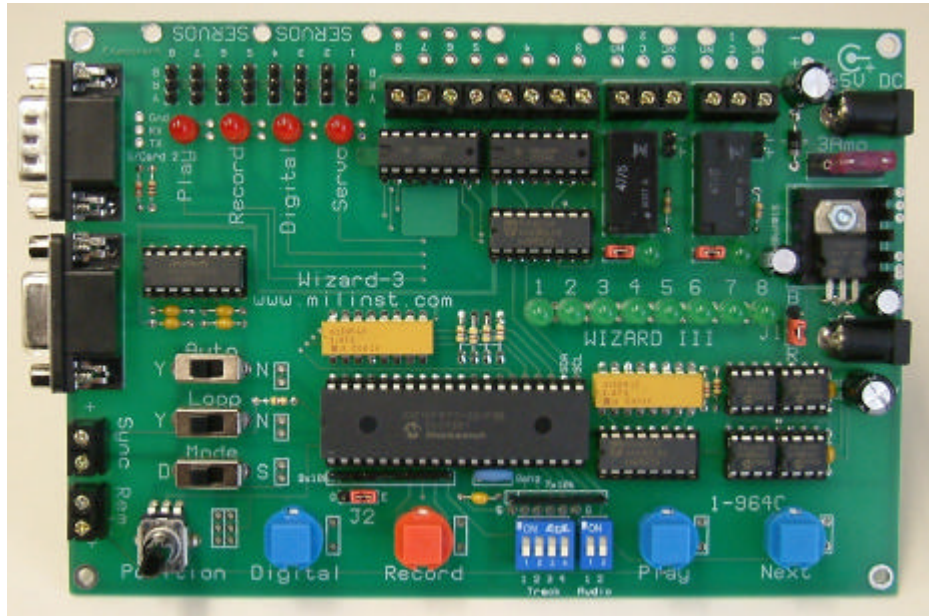


MILFORD INSTRUMENTS Ltd

Wizard III Card (Part Number 1-964)



The **Wizard III Card** will record and playback up to 4 separate tracks for up to 8 R/C type servos channels and 8 digital channels. The maximum recording time per track is 3 minutes for multiple track operation or 6 minutes for single track operation. The card incorporates features such as looping action with variable delay between loops, auto start-up on power up, a connection interface for a PIR, remote switch or pressure pad to initiate playback and the ability to daisy-chain several cards together. The card may be connected to the Milford Instruments Sound card 2 (1-478) to provide audio accompaniment to the tracks.

Recording tracks are built up in real time on a channel-by-channel basis no programming is required.

During recording all previously recorded channels are re-played to aid synchronisation.

Wizard Card III

8 Digital channels- 0/5V @ 100mA outputs.

Selectable 30V at 2Amps DC relay to two digital channels

8 Servo output channels, 8-bit resolution

Potentiometer to adjust the servo positions during recording or to determine the time delay between play loops during automatic loop play- adjustable between 0 and 180 seconds.

NEXT, PLAY, DIGITAL and RECORD buttons

Record enable/disable jumper

AUTO-PLAY and LOOP-PLAY switches

NEXT-channel-key

Changes the currently active channel for manual movement and recording.

Each key-press selects the next channel.

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PLAY-key

Replays a set of recorded moves.

During playback the channel LEDs will form a bar-graph indicating the amount of time used.

A switch may be connected to the REMOTE connector and this will function in the same way as the PLAY-key.

When the moves have finished playing the bar-graph LEDs will extinguish.

POSITION-control

When not Playing, the Position control alters the position of the servo on the currently selected channel.

When Playing back in Loop mode, the Position control sets the time between consecutive plays (approx 10-120secs)

When Recording and with the Mode switch set to S, controls the position of the currently selected (and recorded) servo channel. During Recording, moves for the current channel are recorded whilst the other channels are replayed.

DIGITAL-key

Pressing the DIGITAL key will operate that particular digital channel.

Recording of digital channels will only occur when the Mode switch is set to 'Digital.

RECORD-Enable link

If the jumper is set at the 'Enabled' position, recording will be permitted. Remove to 'Disable' recordings

Track Select Switch

For single track record and playback mode (recording time up to 6 minutes)- set all track select switches to OFF

Multiple track record: (up to 3 minutes recording time per track)

Track 1: Set track switch 1 to ON, all other track switches to OFF

Track 2: Set track switch 2 to ON, all other track switches to OFF

Track 3: Set track switch 3 to ON, all other track switches to OFF

Track 4: Set track switch 4 to ON, all other track switches to OFF

If you are changing from multiple to single track mode (or vice versa) it is strongly recommended that you perform a FULL memory erase as discussed below.

In multiple track mode, all the actions described will only affect the currently selected track.

Audio Select Switch

This switch set is not currently active

Memory Erase

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Full Memory Erase- this will wipe ALL stored moves from memory and is strongly recommended when changing from single track operation to multiple track operation (or vice versa).
Set all the Track select switches to Off. Hold down the Record button whilst applying power to the board- release the Record switch once the bar-graph leds start to light.

Track Memory Erase- this will ONLY wipe the moves stored for that particular track. All other tracks will be unaffected.
Set the Track select switch to ON for the required track. Hold down the Record button whilst applying power to the board- release the Record switch once the bar-graph leds start to light

RECORD-key

Select the required track to be recorded using the Track select switch.
The RECORD-key has no effect unless enabled by using the RECORD-Enable link.

Press and release the RECORD key to commence recording. Press and release the RECORD key to stop recording.

During recording the channel LEDs will form a bargraph indicating the amount of time used. When the moves have finished playing the bargraph-LEDs will go out.

The recording on channel 1 will set the maximum available recording time for all other channels.

Always record channel 1 first. Recording periods for further channels cannot be longer than that set for channel1.

Examples

1. A Short recording

Select channel 1 by pressing NEXT-channel-key until the 1 LED is lit.
Press and release the RECORD-key.
Wiggle the Position-control for 4 seconds.
Servo 1 will move depending on position of Position control.
Other Servos will move following moves previously recorded.
Press and release the RECORD-key at the end of the 4 seconds to end recording.

Select channel 2

Press and hold the RECORD-key.
Wiggle Position control.
The recording will end automatically after 4 seconds.
Select channel 3 etc.

2. A Full-length recording

Select servo channel 1 using the NEXT-channel-key.
Press and release the RECORD-key.
Wiggle the Position-control.
Servo 1 will move depending on the Position control.
Other Servos will move following moves previously recorded.
Recording will end when memory is full.
Select channel 2.
Press and release the RECORD-key.
Wiggle Position control.
Recording will end when memory is full.
Select channel 3 etc.

LOOP-Play-switch

To make the **Wizard Card III** replay the recorded moves repeatedly, move the switch to 'Y'. The moves will start to play when the PLAY-key is pressed. There will be a pause at the end of playing (determined by the position of the Position control) after which the moves will start again. To record moves, the LOOP switch must be set to 'N'.

AUTO-Play-switch

If switched to 'Y' then the moves will be replayed automatically on power-on or Reset. To record moves this switch must be set to 'N'.

MODE –switch

When recording- determines whether the servo action (set to S) or the digital action (D) is to be recorded.

When in loop-play mode, determines whether the servos will move instantaneously back to their start position (D) at the end of the loop or will move back smoothly (S).

Pause between playback loops

When the **Wizard Card** is set to looping play, the length of the pause between repeated playings may be set by the Position-control.

Turn the Position-control anti-clockwise for the minimum delay (0 seconds) and clockwise for the maximum delay (approx 120 seconds). The PLAY led flashes during the pause period.

Maximum Recording time

Single track mode: up to 6 minutes

Multiple track mode: up to 3 minutes per track

Audio Cueing

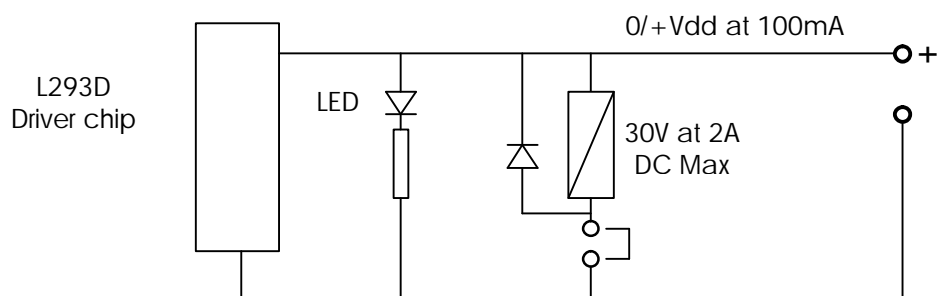
The module provides serial (8-N-1 format at 9600 baud) playback cues via the DB-9 male connector. These are suitable for cueing the playback of recorded audio tracks from our Sound Card 2 module to accompany an animation track. Connection between the 2 boards is by standard 9-way modem lead (pin connected to pin 1, 2 to 2 etc). Data is sent on pin 3. The ASCII track number is sent to commence playback (ie 1 to 4) and ASCII " s " sent to stop playback at the end of a session. If single track mode is currently selected, then ASCII 1 is sent.

Servo Outputs

The servo outputs provide standard pulse coded signals of between 1msec and 2msec duration repeated every 24 msec making it suitable for all standard R/C type servos.

Digital Outputs

Digital outputs 1 and 2 are configured as below:



Digital outputs 3 to 8 due not have a relay or LED indicator option.

Power Supply

The **Wizard Card III** incorporates several power supply options:

Standard method- common supply:

Set the jumper B-R jumper to the B position. In this configuration, the electronics take the required +5V supply from the main supply.

Connect a REGULATED 5V DC supply of 2Amps rating to the 2.1mm socket marked +5V DC (centre contact positive).

Alternative method- separate supplies:

Set the B-R jumper to the R position

Connect a 5-6V DC supply to the +5V DC connector or the adjacent -, + connection holes.

Connect a 9-12V DC supply (or 9V battery) to the second connector- this supplies the electronics via the on-board regulator.