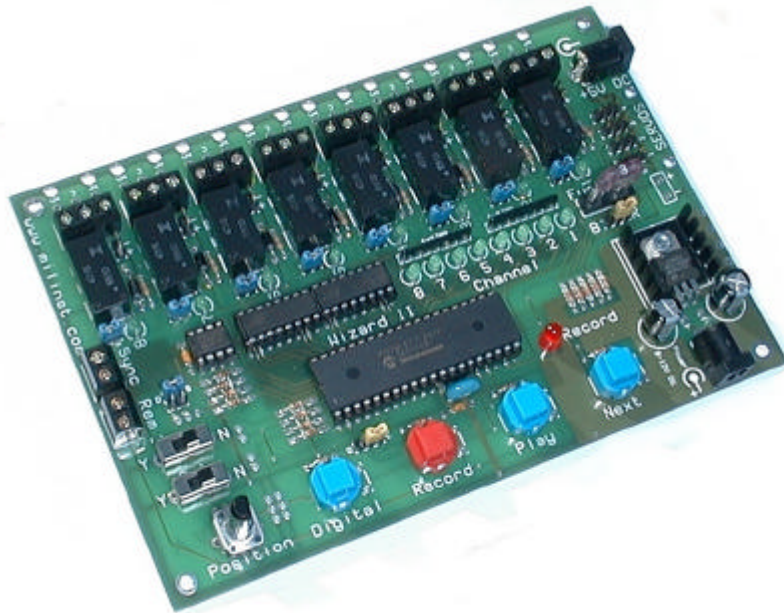


# MILFORD INSTRUMENTS Ltd

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## Wizard II Card (Part Number 1-963)



The **Wizard II Card** will record and playback up to 5 minutes of action for up to 4 R/C type servos and 4 digital outputs or up to 20 minutes of action for 8 digital outputs. 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.

Recording sessions are built up on a track-by-track basis- no programming is required. During recording, all previously recorded tracks are re-played to aid synchronisation.

### Wizard Card II

8 Digital channels- 0/5V @ 100mA outputs.  
Selectable 30V at 2Amps DC relay to each digital channel  
4 Servo output channels  
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 65 seconds.  
NEXT, PLAY, DIGITAL and RECORD buttons  
Record enable/disable jumper  
AUTO-PLAY and LOOP-PLAY switches

### NEXT-channel-key

Changes the current active channel for manual movement and recording.  
Each key-press selects the next channel:  
When the Servo option is selected- servos 1 through 4 and then digital channels 5 through 8,  
When the Digital option is selected- digital channels 1 through 8

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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 Move control alters the position of the servo on the current channel (if selected).

If the digital channels are selected the Move control is inoperative.

During Recording, moves for the current channel are recorded whilst the other channels are replayed.

### **DIGITAL-key**

When a digital channel is selected, pressing the DIGITAL key will operate that particular digital channel.

### **D-S Jumper**

With the jumper in place, the board is configured for 8 digital output operation.

With the jumper out, the board is configured for 4 servo / 4 digital output operation.

**If you change the configuration, it is strongly recommended you perform a memory erasure as detailed below otherwise you will get very strange results**

### **RECORD-Enable link**

If the jumper is set at the "E"abled position, recording will be permitted. Remove to "D"isable recordings

### **RECORD-key**

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.

If the RECORD key is held down during power up, all memory will be erased (takes approximately 20 seconds)

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 Move-position-control for 4 seconds.

Servo 1 will move depending on position of MOVE-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

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Press and hold the RECORD-key.  
Wiggle MOVE-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 MOVE-position-control.  
Servo 1 will move depending on position of MOVE-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 MOVE-position-control.  
Recording will end when memory is full.  
Select channel 3 etc.

### LOOP-Play-switch

To make the **Wizard Card II** play 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 Move 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'.

### Pause between play loops

When the **Wizard Card** is set to looping play, the length of the pause between repeated playings may be set by the MOVE-position-control.  
Turn the MOVE-position-control anti-clockwise for the minimum delay (0 seconds) and clockwise for the maximum delay (approx 65 seconds).

### Maximum Recording time

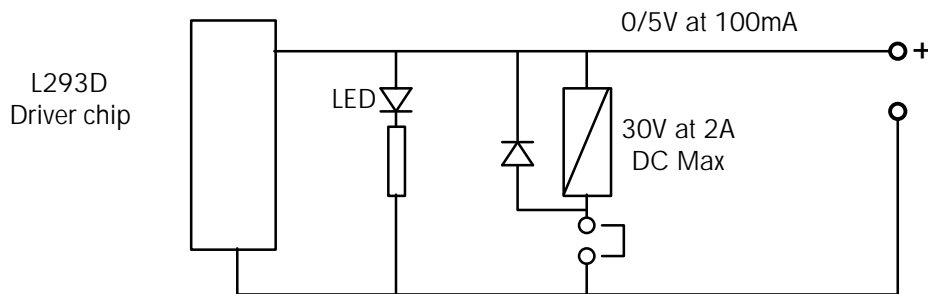
In servo-Digital configuration, the eeprom which stores the servo moves will store approximately 5 minutes of servo and digital actions.  
In Digital only mode, the recording time is approximately 20 minutes.

### Servo Outputs

The servo outputs provide standard pulse coded signals of between 1msec and 2msec duration repeated every 20 msec making it suitable for all standard R/C type servos.

## Digital Outputs

The digital outputs are configured as below:



## Power Supply

The **Wizard Card II** 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.

## Other Products

Other products from our animation range:

<b>Servo-Check</b>	Simple way to calibrate/ check standard R/C servos
<b>AutoTalk</b>	Use sound to move a servo- useful for speech applications
<b>Animate</b>	Similar to the Wizard Card but with a 20 second speech/audio chip
<b>Puppet</b>	Single servo record and playback module- up to 160 seconds action
<b>Puppet+</b>	As the standard Puppet board but with an additional digital output and 1A relay
<b>RomCopy</b>	Produces duplicate eeproms for the above modules- suitable for multiple applications.

Full details of the above products can be found on our web site or contact us for special applications.

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