Puppet Master 3x Instructions

Do not attempt any wiring before reading <u>all</u> of these instructions!

Overview: *The Puppet Master 3x is a three- channel effect control that can mimic the user's input and play it back whenever triggered.*
Power Requirements- 9 VDC included wall power adapter
Internal Relay Switching Capabilities- 10 Amps. maximum per channel @ 24 to 120 volts Alternating or Direct Current. Reduce current by one half for inductive loads. A terminal block with Common, Normally Open and Normally Closed positions is provided for wiring to the device to be controlled.

Warning: A basic understanding of electricity and electrical circuits is required to utilize this timer. The potential of injury and property damage from the use of line voltages and high current lower voltages is ever present. If you are not knowledgeable about, or comfortable with electrical circuitry, obtain professional or experienced help before proceeding.
*At no time should the internal relay contacts be subjected to more than their rated capacity, 10 amps resistive or 5 amps inductive load. **Never apply external power or voltage to the side terminal block used for an external switch hook-up, permanent damage will result.** Never use the timer or the wall adapter power supply in damp or wet locations. Always unplug the timer when not in use. We strongly suggest a Ground Fault Interrupter be used with any line voltage applications. <u>Disconnect all power sources before wiring to terminal blocks.</u>*

Programming Instructions

Do not attempt to hook any effects up to the Puppet Master 3x at this time. If you have the optional IR Sensor it would be very advisable to disconnect it now. Remove the IR Sensor's black wire from the terminal block (position 3) to avoid unwanted activation during early trials and experiments.

Before proceeding, leave the jumper on the top panel set as it was shipped from the factory in the **Run** position. Plug the transformer into a properly wired wall socket that provides clean, uninterrupted 120 VAC. Carefully plug the power cord into the socket at the front right side of the Puppet Master 3x. After a 2 second delay the three LED's will be flashing quickly. Now momentarily press the Black Button marked A. Your Puppet Master 3x will play back the test sequence recorded here at Terror By Design.
Channels 1, 2 and 3 will play Shave and a Haircut, Two Bits. All three LED's will start flashing rapidly to indicate the unit is ready to be retripped. Go ahead and press Button A again if you wish, or, after seeing it work you can go on to experimenting with your own programming.

Unplug the power cord from the Puppet Master 3x. (When removing power always unplug the power plug from the case, do not unplug the transformer. If the transformer has been unplugged wait 15 to 20 seconds before plugging it back in) Move the Jumper on the top panel from the **Run** position to the **Program** position. The Jumper must slip over two pins in either position. Without touching any buttons plug the power cord back into the Puppet Master 3x. All the LED's will glow steadily.
Your Puppet Master 3x is ready to be programmed.

1. Which channel is going to be programmed and for how long is chosen by pressing Button A, the black button.
Programming Channel One: Press Button A one time and **hold** it down, all the LED's will turn Off. Within a

few seconds the LED for Channel One will flash once to indicate Channel One. As soon as the LED goes Off Channel One starts recording. Continue to hold Button A down and enter a sequence of button presses with the Channel One Red Button. For the sake of familiarizing yourself with the Puppet Master 3x tap in a rhythm like the first line of Jingle Bells or Mary Had A Little Lamb. When you finish with the sequence release Button A, all the LED's will turn back On. If you desire you can play back what you just recorded in Channel One without leaving the Programming mode. Press the Channel One Red Button and hold it for 3 to 4 seconds, Channel One will play back exactly what you had recorded. (During playback On-Times are indicated by the LED being lit, Off-Times by the LED being off)

If a mistake was made in Channel One, start over at number 1 above.

2. Programming Channel Two: To record the next Channel in synchronization with Channel One press Button A two times and **hold.** All the LED's will go Off, Channel Two's LED will blink two times to indicate it is ready to accept your program. As soon as the second blink finishes start entering your programming with the Channel Two Red Button, Channel One will start to play back at the same time to allow you to add Channel Two in synchronization.

Like above, to play back what was entered in Channel Two, press and hold Channel Two's Red Button for 3 to 4 seconds, Channel Two will play back.

If a mistake was made in Channel Two, simply start over at number 2 above**.**

3. Programming Channel Three: To record the next Channel in synchronization with Channels One and Two press Button A three times and **hold.** All the LED's will go Off, Channel Three's LED will blink three times to indicate it is ready to accept your program. As soon as the third blink finishes start entering your programming with the Channel Three Red Button, Channels One and Two will start to play back at the same time to allow you to add Channel Three in synchronization.

Like above, to play back what was entered in Channel Three, press and hold Channel Three's Red Button for 3 to 4 seconds, Channel Three will play back.

If a mistake was noticed, start over at number 3 above.

To play back all three channels while still in the Programming mode (Jumper still set to Program) press Button A four times and hold for 4 or 5 seconds, all three channels will play back. Once the channels start plying back release Button A.

5. If you're happy with the timing sequence you've entered, you're good to go. To place Puppet Master 3x in Run or Playback mode unplug the power cord from the unit. Move the Jumper to the Run pins. Plug the power cable back in to the Puppet master 3x. All the LED's will be flashing quickly to indicate it is ready to be tripped. Pressing Button A at this time will trip the unit or an external switch such as a switch mat or the optional IR Sensor from Terror By Design can be hooked up to the side terminal block.

Button Recap:

Press Button A once and hold, Channel One LED flashes once, continue to hold Button A while entering program with Channel One's Red Button. Release Button A.

Press Button A twice and hold, Channel Two's LED flashes twice, Channel One Starts to play back, enter program with Channel Two's Red Button. Release Button A.

Press Button A three times and hold, Channel Three's LED flashes three times, Channels One and Two Play back, enter program with Channel Three's Red Button. Release Button A.

Press any Channel's Red Button for 3 seconds to play back that channel's recording.

Press Button A four times and hold to play back all channels while in Program mode.

Press Button A 8 times and hold, all LED's flash 8 times, all Channels can be recorded at the same time with their respective buttons like a keyboard. Release Button A.

Some notes and tips:
Among all the other advice we offer here, we would like to recommend testing your programming sequence with light bulbs before hooking up any moving props with their inherent dangers. Also, Puppet Master 3x does not know where your prop is, or if it has moved, the use of safety lockout switches in series with the PM 3x's internal relay is advisable. For instance, if you're opening a coffin lid before a corpse pops out, add a switch that senses the lid has opened all the way before the corpse can move. Both the lid's safety switch and the Puppet Master 3x's relay have to be closed before the corpse can move.

Always begin and end a complete "Puppet" sequence with an Off (Channel Button not pressed). Use the last Off as a Hold-Off to keep your effect from being re-tripped by patrons before you want it to be. 15 to 20 seconds is usually a sufficient Hold Off Time.

Use Channel One as your dominant or anchor channel such as a light in a room. It's easier to record channels Two and Three if you have a dominant channel to base things off of.

The maximum total number of On and Off cycles the Puppet Master 3x will remember per channel is 125 depending on memory usage. That's 125 On's and 125 Off's. The maximum record time is about 40 minutes if each On and Off is 10 seconds long. Overrunning the available memory may give results you may not recognize The minimum timing resolution is 40 milliseconds. Time entered that goes over the 40 millisecond resolution is rounded up to the next 40 milliseconds. Or... if you press Button A for 132 milliseconds it will be remembered as 160 milliseconds. This resolution can give a slightly slower mechanical feel to fast rhythms you may enter. The best way to correct this is to emphasize or express the rhythm a bit more than may feel normal.

Effect Wiring Instructions

The Puppet Master 3x wires into your effect's circuits just like a simple On/Off switches would. See the illustration. The Puppet Master 3x does not supply power on its' own to your effect, again see the illustration, each channel wires into one leg/wire of the power going to your effect.

Typical Terminal Block Hook-Ups
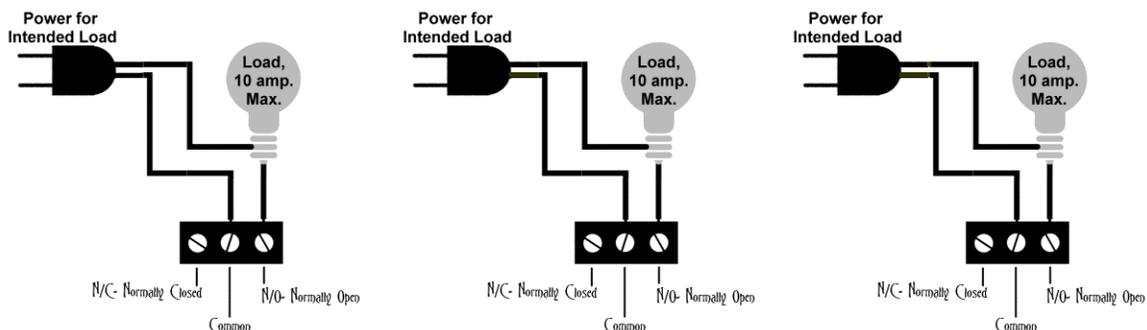
1. Wires going into the terminal blocks should be stripped bare as close as possible to ¼ inch long. Do not over-tighten the screws while clamping the wire. After clamping the wire, wrap the top three position terminal block with electrical tape for additional insulation when running 120 VAC.

Never run external voltage to the side terminal block used for sensor or switch hookup, permanent damage will result. A switch closure across terminals 1 and 3 is all the timer needs to start the timing cycle.

2. Each channel's three-position terminal block is the access to the internal relay. This terminal block is wired into a circuit as a switch would be, one leg of the power to the target effect, the other leg to the timer and then to

the effect. See the following drawing for a typical example.

3. While most applications will use the Common and Normally Open Positions, the Normally Closed position can be used to turn a device -Off- such as a light when the timing cycle starts. Following this thought, sharing the Common position would allow a light wired to Normally Closed to turn off as the scare-device wired to Normally Open is activated. Or… general area illumination is killed just as the scare happens.

4. The <u>bottom</u> terminal block is provided for external hook-up to a normally open switch such as a pushbutton, switch mat or Terror By Design's T-Sense. (see 5 and 6 below for IR sensor versions)

On the side terminal block only terminals 1 and 3 are used to connect to an external switch. The terminal block only needs to see a switch closure across terminals 1 and 3 for activation. **<u>Never run any external voltage or current to this terminal block.</u>** Never connect anything to terminal 2 other than an IR sensor supplied by Terror By Design. Do not attempt to use home-center type (porch light) infrared sensors, permanent, un-repairable damage will result.

5. Infrared sensor supplied Puppet Master 3x's will have the sensor already attached and tested. The sensor head has a range of up to 15 to 20 feet. **After initial power up of the Puppet Master it will take 45 seconds for the IR sensor to become active.** After the 45 second delay the sensor will react immediately to human activity unless power has been removed and re-applied. Depending on the surroundings **it may take a minute or two for the IR Sensor to settle down and become stable after being powered up.** Killing power to the effect being controlled may be a good idea while the IR sensor settles down. **Disconnecting one wire of the sensor can help avoid running and tripping confusion during programming.**
Keep the IR sensor away from sunlight and heating or air-conditioning ducts to avoid false triggering.

6. **Should it become necessary to detach the IR Sensor wires from the bottom terminal block be careful to mark or identify the wires so they can be replaced in exactly the same positions. Failure to reattach the wires in the correct positions may lead to internal damage.**

7. Puppet Master 3x can be set to continuously loop the timing sequence by adding a wire jumper between terminals 1 and 3 on the bottom terminal block.

Glossary

On Time- Time sequence when the internal relay is energized and held On.
Hold Off Time or Off Time- Time sequence when everything is held Off. This helps avoid constant re-tripping of a device until ready..
Common- On the terminal block it provides a single hook-up to access either set of contacts in the relay.
Contacts- The parts of a switch or relay that make a physical connection and allow current to flow.
Countdown Repeat- Repeat a programmed time event for a set number of cycles.
Infrared- A spectrum of light/thermal radiation outside the range of human sight.
Momentary Contact- A switch that does not stay in the actuated position unless held. Doorbell buttons and switch mats are good examples.
Normally Open- A switch or relay contact set that is not making contact in the normal resting position, no current is flowing, or it can be considered –off- also referred to as **N/O**.
Switch mats and doorbell buttons are good examples of manually operated, normally open switches.
Normally Closed- A switch or set of relay contacts that are making contact in the normal state, or it can be considered -On- also referred as **N/C**.
Relay- In this case an electro-mechanical switching device that takes an electrical signal to open or close its' switch contacts.