GILDERFLUKE & CO. • 205 SOUTH FLOWER STREET • BURBANK, CALIFORNIA 91502-2102 • 818/840-9484 • 800/776-5972 • FAX 818/840-9485
EAST COAST/FLORIDA OFFICE • 7041 GRAND NATIONAL DRIVE, SUITE 128d • ORLANDO, FLORIDA 32819 • 407/354-5954 • FAX 407/354-5955

"I am proud of the fact that I never invented weapons to kill" - Thomas Edison

Gilderfluke & Co.
ROBOTICS & SOUND SYSTEMS

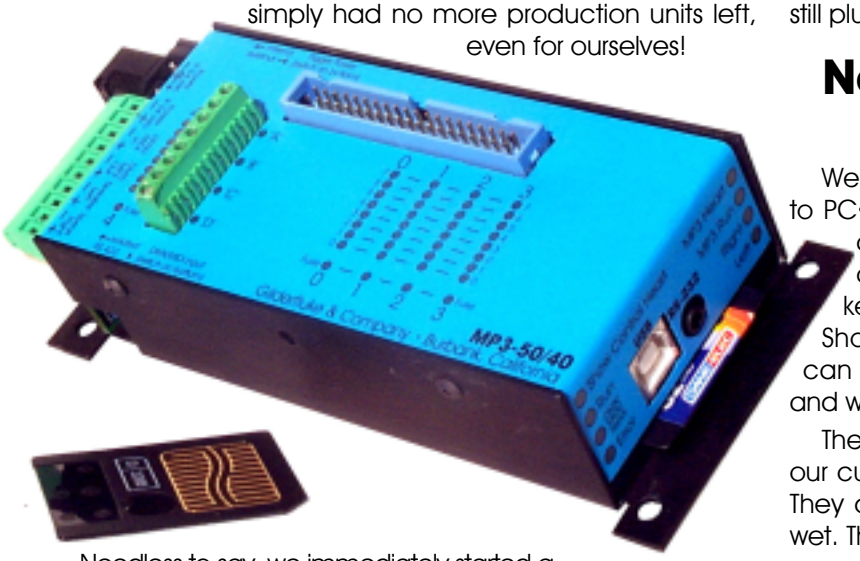
All the News that we could jam into a little under 8 pages

Views and News from the World of Gilderfluke & Co., Inc.

Winter 2003 - 2004 **http://www.gilderfluke.com** Number 12

Mp3-50: The First Year

It has now been one year since we released our first production run of Mp3-50 Audio Repeaters and Show Controllers. We know they were going to be popular when the first run of 100 sold out in less than a month! This left us in the unusual position of having to scrape together a few prototypes to use at the IAAPA convention in 2002. We simply had no more production units left, even for ourselves!



Needless to say, we immediately started a second run, and a third, and a fourth, and now a fifth! Each run larger than the last. All in the first year! As soon as one run comes in from our production shop, it disappears out the shipping door. We are selling them just about as fast as we can make them!

We have made constant improvements in the Mp3-50s

~ continued on page 4 ~

Wireless Servo Control

We have a project where a film client needed to control nearly a thousand model airplane-style ServoMotors at the same time. To complicate matters, they had to do this without using any wires. Typical off-the-shelf model airplane radios each control 8 or 9 ServoMotors. Just a few radios will work just fine together. If too many radios try running in the same small area, all you get is jumping servos as the radios interfere with each other. This project would require almost 100 radios. Not only would this be cost prohibitive, it probably wouldn't even work using standard RC radio gear!

~ continued on page 7 ~

Twenty Years, more or less....

It has now been twenty full years since Gilderfluke & Company built and installed our very first commercially available Show Control System. This was at Knotts Berry Farm in Buena Park, California. The year was 1983. As far as we know, the animation it was running has long since crumbled into dust, but the control system (last time we checked) was still plugging away! •

Newly Portable Licensing for PC·MACs RealTime

We have been selling a software-only, license upgrade to PC•MACs for some years now. It allows you to program and play shows in RealTime using only your mouse and keyboard as the input devices. When you press a key or move the mouse, it triggers the output of the Show Control System. At the same time, PC•MACs can remember exactly what you did and when you did it for later playback.

The only problem we have had is that our customers are rough on their computers. They drop them. They kick them. They get them wet. They run over them with ride vehicles!

Since the Software license is linked to the computer and hard drive upon which it is installed, there has been a constant need for us to replace licenses as computers fail or get upgraded. This is a pain in the butt.

Starting with the this year's IAAPA release of PC•MACs, we will be implementing a combination hardware/software licensing scheme based upon a USB 'dongle'.

When you run the new version of PC·MACs, it will work

~ continued on page 6 ~

Wireless DMX-512

Imagine programming a show without having to run a programming cable. When you finish programming a scene, you just pick up you computer and move to the next scene without having to drag along and reroute cables. Wouldn't it save a ton of time to be able to program a ride through attraction from *onboard* the vehicle, instead of having to work from track side?

While doing the 'legwork' for the wireless ServoMotor

~ continued on page 6 ~

What's New In PC·MACs

PC•MACs has been undergoing some major enhancements this year, which will be released after IAAPA in Orlando. In addition to the changes in the RealTime Licensing (see 'New Portable Licensing for PC•MACs' on page one), there have been dozens of enhancements to PC•MACs through the year. Several are to better support the MACs-USB, while others add new capabilities and features:

The easiest way to program a show has been to link a .wav file to the show you are working on. Access is instantaneous, and when editing on the OffLine Editing window, you can see the waveforms of the sound to see the relationships between the sound and animation. We have now extended this to support most types of audio and video files supported by the Windows Media Player. This means that you can load up a Mp3 directly for programming a Mp3-50, without having to convert it back to a .WAV file. About the only formats not supported are those with DRM (Digital Rights Management) codes.

When a show is linked to a video file, a video window can appear in PC•MACs and on the OffLine Editing Window. If you are programming a motion base, the video can come right off your computer! For programming animated characters with perfect lip sync, you can videotape the actors mouths as they record their lines. The proper mouth shape and timing will then appear right on PC•MACs screens!

When downloading shows to the playback hardware, PC•MACs has always remembered the settings on consecutive downloads. The problem was that it couldn't recall a download that had been done years before, or on a different PC. A newly enhanced .set file includes all the information that PC•MACs needs to reload all the settings from a previous download.

On shows that use a Smart Brick Brain, the Brain has always needed to be configured manually with the numbers generated in the .set file report by PC•MACs. Now there is an additional command on the AutoDownload menu which allows you to send the current configuration to the Smart Brick Brain. Individual show settings, show names, time code and strings are all set automatically. Only the settings for the inputs and calendar/schedule will need to be entered manually.

PC•MACs and GilderTerm have never liked to share the same serial port. Only one can 'own' it at the same time (this is actually a limitation inside Windows). To make configuring hardware easier, GilderTerm can now be called up from within PC•MACs. When it is active, it knows it 'owns' the serial port. As soon as it is put away, PC•MACs takes it back.

In the licensed 'Hardwareless' mode of operation, PC•MACs lets you program your show in RealTime using the mouse and keyboard as a simple 'programming console'. We now have enabled input from joysticks as well. Analog channels and digital switches can be assigned to program different functions, just like the mouse and keyboard.

It is not unusual to intersperse 'delay' shows between the regular shows, especially on smaller systems like the BR-MiniBrick8s. Even if each delay show used the same .sho file as its source, PC•MACs would save separate data for each. In the smaller systems, this eats up the show data space needlessly. Now PC•MACs will save the data from identical shows only once, and just save a new header (which only eats up sixteen bytes!) for each instance of the show in the AutoDownload list.

The list of tricks you can do with the hardware inputs on a MACs-USB (or older MACs-SMP) has grown. You can now call up console presets, along with all the standard PC•MACs 'transport' commands.

We have done A LOT of film projects this past year. Many improvements in the operation of the mixer functions have been made to accommodate the needs of on-set use. These include more stable mixer operations, the ability to average the channels being mixed, and toggles for turning off (or not) mixing during playback and rehearsal. •

Keyboards Ease Programming

PC•MACs has keyboard shortcuts for just about every function. Even so, while you are programming a show, it is not always convenient to reach for a keyboard to find that special keystroke combination. We have found specialized keyboards which can make programming easier.

The one shown is 1 x 16. Each key can be configured to represent a single keystroke, or a whole series of keystrokes.

You can configure individual buttons for 'Record', 'Pause' or 'Play'. Other keys can be used for the number keys '1' through '8' (great for Hardwareless programming!).

Keys can be made to do more than one thing. At the trade shows, we set buttons to stop and then play, or stop and record. This makes sure it always starts from the front. •

MACs-USB

The MACs-USB was a long time in coming. Under development for almost four years, we started shipping them in quantity last year (and sold out of our 1st run!)

New features include the ability to generate Smpte time code at 24, 25 and 30 FPS, and run from the power provided by the USB port of the PC. In most cases, a separate power supply is unneeded. •

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Video Playback Solutions

We have video solutions available to fit just about any application or budget.

The CP-100 is a low cost video player which can hold up to 20 minutes of MPEG-2 video on a CD-ROM. It is available with or without trigger inputs.

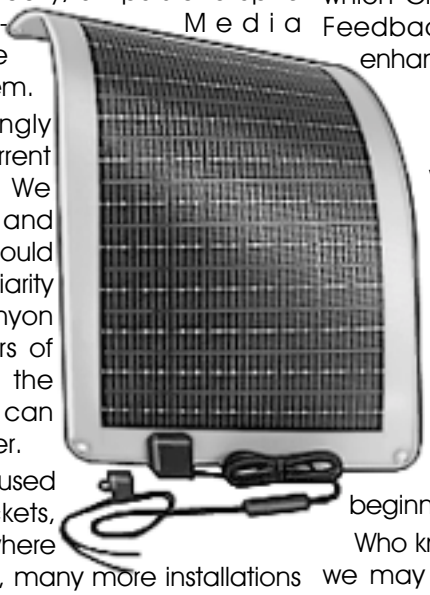
For higher reliability installations, our 'no moving parts' solution is the Video Chameleon. This plays video from removable Compact Flash cards. It has a serial port and digital trigger inputs for control. An Ethernet port allows remote updating and configuration.

The standard for video source used to be a Pioneer LD-V8000 LaserDisk. This has been replaced by the Pioneer DVD-V7400. It is about the only 'industrial strength' DVD player available. It can be triggered and synchronized through the RS-232 serial port. •

Sounds in the Woods

We had a client last year who needed sounds to be played in a remote location. A *very* remote location. The requirement was for audio narration to accompany the guide signs located along hiking trails in a park.

Guests can approach the signs, and press one of several buttons to learn about a geographic feature or the local fauna and flora. With hours of capacity, 8 inputs and up to 255 sounds stored on a Smart-Media card, selecting and playing the sounds from a Mp3-50 is no problem.



Even when using its surprisingly powerful built-in amplifier, the current draw of a Mp3-50 is very low. We located off-the-shelf solar cells and matching gel cell batteries that could easily run the units. Another peculiarity of this installation was steep canyon walls which allowed only six hours of sunlight each day for charging the batteries. Even so, the Mp3-50s can run for days through cloudy weather.

The same solution can also be used to provide sound on skyway buckets, boats, islands and other places where power is unavailable. In the future, many more installations like this will be required for ADA compliance. •

Mini Mp3 and BR-EFB

Two new products are planned for the first half of 2004. In the first quarter, we should be releasing a 'cut down' version of the Mp3-50 Audio Repeater. This will have fewer inputs, and no ability to be upgraded for show and lighting control or rack mounting. It will strictly be an audio repeater.

The BR-EFB is now on somewhere around its sixth ground-up redesign. This will be a Smart/Dumb 'brick' card which will close the feedback servo loop for up to eight axis. It will have modes to run stepper motors (up to four bipolar) and DC motors (current output is several amps per channel. Configuration will be done through the serial port, or the 2 x 16 LCD screen on its front. Onboard storage for more than a half hour of animation data will be standard (larger capacities are possible), or it can run via DMX-512 provided by a BR-SmartMedia or other source. •

New Analog Pneumatic Valves

What is the reason so few companies build analog Animatronic figures? There is only one answer, and that is the cost of the valves. Typical analog pneumatic valves cost in the range of $500 to $1000!

Just about everyone who has been involved in animation for a long time has tried to operate standard digital valves in an analog mode. The Clippard EV valves are particularly well suited for this sort of thing. Now Clippard Engineering has revamped the 'spider' in their standard EV valves. It has been optimized for use in an analog mode.

The good news: These valves are about $50!

The bad news: They are two way valves, so you will need to use four valves to control a double acting cylinder (still only about $200), and they need a special driver circuit.

We will be doing some experimenting with a set of Valves which Clippard has kindly sent to us. Our new Electronic Feedback Card will include a mode of operation enhanced just to support these valves. •

Application Notes

We are often asked to help our clients with specific projects and questions. If we get asked the same question more than a few times, our 'stock response' will usually evolve into an 'application note'. The subject of these range from "How to hook up pneumatic cylinders" to "How to build a simple programming console" to "How to attach an animation system to a remote control".

Our most popular is an application note on 'How to hook up your first Show Control System', for beginning users.

Who knows, even if your application seems pretty bizarre, we may well have the answer in one of our application notes. Just give us a call to find out. •

Easy-To-Use Relays Packs

We have found what is perhaps the best bargain in relays. The LC-8SP. This is a box with eight relays in it. Not clunky electromechanical relays, but modern, zero crossing

solid state relays! These won't 'click', 'clunk' or wear.

The LC-8SP comes in a 4" x 4" x 19" rack mountable metal box. Power is applied through a line cord, and the output is through eight duplex 'Edison' sockets (two sockets for each controlled circuit!). You just plug the box into the wall, and then plug your loads into the outlets. Attach a Show Control system through our specially-built adapter and you can control eight 10 Amp loads. Total load for all eight outputs is 15 Amps at 115 VAC (220 is availible). •

Mp3-50..... continued from page 1:

since their initial release:

Although the name remains Mp3-50, they can now play standard sixteen bit resolution .wav files as well. The normal .wav sample rate is 44.1 K samples per second. Our latest firmware supports .wav files at 48 K and some of the lower rates as well. Mono or stereo .wav files can be used.

The Mp3 chip used inside the player is designed for use in 'hip top' Mp3 players. As a result, many of its features are for the unique circumstances of bouncing along while tied to a jogger's belt. Chief among these is a slow trigger response and pre-buffering the data stream to allow for skips. None of these are needed in the Mp3-50s, and resulted in a long trigger delay. We have now reduced the trigger time down to approximately 20 milliseconds. This is less than one frame, and should get the animation and sound tight enough to satisfy anyone's need for lip sync!

The 'Atomic' Clock remains a popular option, especially for clock towers and fountain control systems. This adds a clock inside the Mp3-50/8 or Mp3-50/40. This clock is laser trimmed to be accurate within +5/-10 parts per million (about as accurate as a good wristwatch). Just to keep the thing *really* accurate, we then tie it to an external clock radio-synchronized with the Naval Observatory clock in Boulder, Colorado. This clock is accurate to within one second every 50,000,000 years. The external 'atomic' clock synchronizes the internal clock to the National Bureau of Standards time once each day.

Shows and sounds are scheduled to play is set using the Mp3-50 Configurator. A familiar calendar is used to select which days you want to use for any particular schedule. You can have up to 255 different schedules, with any number of entries in each. Each schedule is then a simple list of the time you want something to play, and which show or sound you want to play. •

Passive, RetroReflective or Through-Beam?

What do these three phrases have in common? They are normally followed by the word 'InfraRed', or 'IR' for short. They are the three main families of sensors used to trigger a show or sound as a person approaches. Each has its own special attributes and purpose:

Passive InfraRed sensors are the motion detectors most commonly used in alarm systems. They are the ones you see winking their little red eyes at you as you pass. They pick up the heat of a moving object, preferably a human, and sound an alarm. Because they are looking for a difference in heat from the background, they can miss humans as the ambient temperature approaches that of the desired targets. Circuitry in the sensors can be used to minimize the sensitivity to smaller objects (i.e.: pets, children or other varmints). Passive InfraRed sensors should be used when you want to trigger a sound or show when a person enters the a general area, and not at a specific point. The point when the sensor triggers will vary with the temperature and other conditions. If you want to cover a large area, aim the sensor horizontally (or nearly so) to cover the entire space. If you want to trigger as a person approaches a specific area, aim the sensor vertically (or nearly so) to cover just that space. In museums, the sensors are often mounted directly above a display, pointing down at the floor in front.

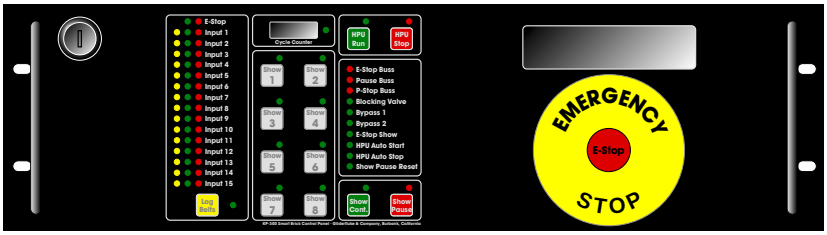
A 'Through Beam' IR sensor consist of two parts. The two parts usually look just about identical. One is a transmitter, and the other a receiver. The receiver will signal any time an object passes between the two, breaking the beam. This is the most reliable kind of sensor to use for safety or picking up a person passing a specific place.

RetroReflective IR sensors are similar to Through Beam IR Sensors, except that the transmitter and receiver are built into the same housing. The beam from the transmitter is aimed at a reflector located across the path of the motion. The light bounces off this reflector, and some of it makes it back to the receiver. When any object blocks the light beam, the receiver is tripped to start the show/sound. RetroReflective IR sensors have the advantage over their Through Beam counterparts that only one combined transmitter/receiver needs to be mounted and wired. The disadvantage is that under some circumstances, a RetroReflective IR sensor can be fooled. Some cheaper ones will happily reflect off any light colored object, just as easily as the reflector they are supposed use. These are called 'Diffuse' reflective sensors when they are designed this way purposely. We had one retrofit that used some *really* cheap sensors for their safety system. They wouldn't see anyone in light colored clothing within five feet! The only way they would E-Stop the ride was after splashing blood obscured their view or darkened the cloth-ing. We insisted that they be replaced! •

Off-The-Shelf Retrofits for Motion Base Simulators

We have been building Control Systems for motion base simulators as long as we have been building Show Control Systems. One of our first systems was made to control a simulator. Many systems go into Motion Base retrofits. Most of these are for Doron and similar small bases that were mass produced through the years. Some of these have been junked, simply because their projection or control systems have died. They can be bought for a fraction of the original cost, even though their mechanisms are OK.

Switching one of these bases over to a Gilderfluke & Co. Control system usually takes about a day. There are four wires per cylinder, and about ten more wires that need to be rerouted. Four relays need to be replaced. You can then bolt in a small LCD projector, add a new video source (Solid state or DVD), and you are ready to fly.



The total cost is about $3500 for our hardware, plus the labor to install it. If you need someone to help you with this, please contact us. We know several people who have already converted several small motion bases, and would like nothing more than to convert yours too. •

Doing More With Less

The number of different products we sell continues to shrink. A few years ago, our price list was 10 pages long. It is now down to six. What is the reason for this? We are purposely narrowing our product lines. Combining the functions of several products into one. As an example, the BR-SmartMedia replaces three different products. The Mp3-50s replaces a dozen different products.

Most projects break down into a few basic architectures:

Small digital shows without sound: BR-MiniBrick8s for 8 outputs or less, BR-MultiBrick32s for larger shows. Need analogs: Use a BR-ANA, with Z-Bricks for digital outputs.

Shows with Sound: Mp3-50/8 or Mp3-50/40. These provide show control, lighting control (via DMX-512), high quality audio output from Mp3 or .wav file playback, and amplification via the on-board 22 Watt amplifier. For the vast majority of shows, the Mp3s are the only piece of equipment needed. Add light dimmers, SER-DMXs, BR-ANA or DACs if you need dimming, ServoMotors, or analogs.

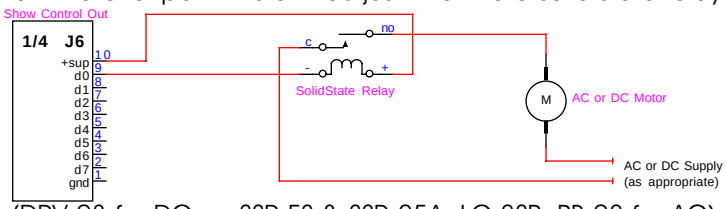
Larger shows: BR-SmartMedia feeding DMX-512 to Z-Bricks, Mp3-50s, SER-DMX, and other cards. Show data is stored centrally. The other cards are used only for outputs.

Timecode locked shows: Add a Brick Brain. They can lock any number of bricks to Smpte or DVD time codes. •

App. Note: Motor Animation

Motors are often used for doing low cost animation. Most motorized animation runs as long as it is plugged in, doing the same thing over and over and over and over.... You typically see it in store holiday and window displays. Adding a simple Show Control System like the BR-MiniBrick8 or Mp3-50/8 or Mp3-50/40 (for synchronized sound too!) is an easy and inexpensive way to build a much better show.

If the motor just needs to run for a while, and then stop at whatever point it is at: You just wire it to a solid state relay

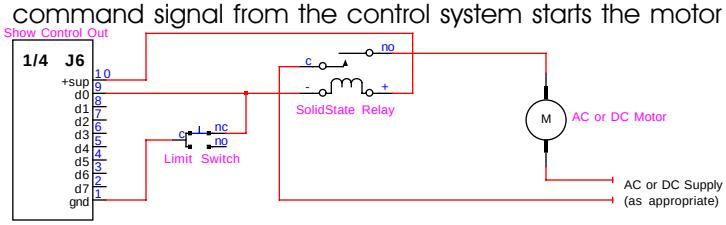


(DRV-03 for DC, or SSR-FS & SSR-25A, LC-8SP, PB-08 for AC). When the output is 'on', the motor runs. When it is 'off' the motor stops.

But what happens when you need to have the motor stop in a specific position? This requires some sort of rudimentary feedback. If it only needs to stop at a single 'home' point, a limit switch is the most economical form of feedback available. The limit switch is mounted so that it gets triggered by a cam at the desired stopping point. This technique can be used on turntables, color wheels, pattern wheels for fiber optics, or electrically driven linear actuators.

As before, the output from the control system is wired to a solid state relay which will be controlling the motor. The limit switch is wired to the low voltage/current side of the relay as well. This keeps the wiring to the limit switches at the low 'control' voltage. The easiest method is to clip a transition connector to the same cable that feeds the relay. You can then wire your limit switch to these terminals.

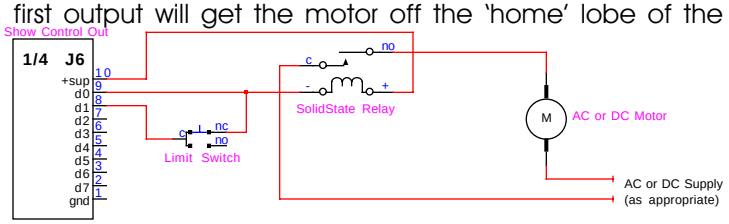
The limit switch connects the signal line to the relay to ground whenever the switch is NOT on the cam lobe. The command signal from the control system starts the motor



running. Soon after, the limit switch runs off the trailing edge of the cam lobe. The limit switch now takes over to connect the relay's primary to ground, forcing it 'on'. As it rotates around, the control system output doesn't matter, because the limit switch is forcing it 'on'. When the cam lobe once again reaches the limit switch, it opens the limit switch's contact. If the control output is 'on', then the motor will run right past the cam lobe, completely ignoring it. If the command signal from the control system is 'off', the motor will stop (the lobe must remain in contact with the switch long enough for the motor to coast to a complete stop).

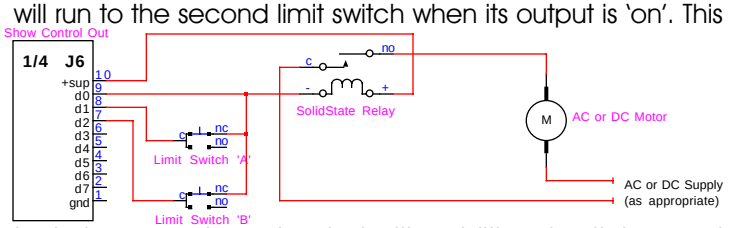
In the previous example, the motor rotates one full cycle once it is started. What if you need to be able to stop the

motor at one or more spots before it reaches 'home' again? All you need to do is wire the limit switch to a second control output from the Show Control System. The first output will get the motor off the 'home' lobe of the



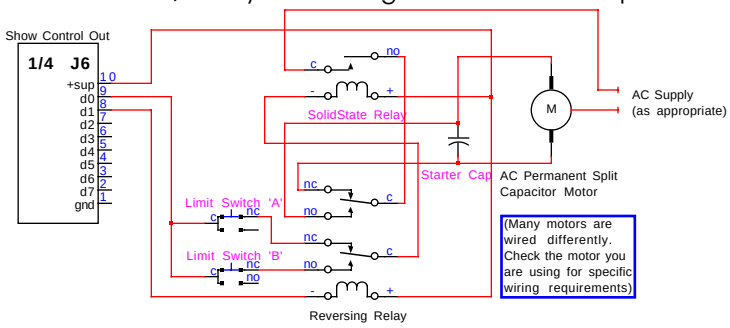
cam. It is used (with the second output 'off') to start and stop the motor at any point, ignoring the limit switch. The second output (when the first is 'off') is used when you need to 'home up' the motor. Turn it 'on' and the motor will run until it parks on the 'home' cam lobe.

If you need to be able to stop at a second point, you just add another limit switch and digital output from the Show Control System. With the first output is 'off', the motor will run to the second limit switch when its output is 'on'. This

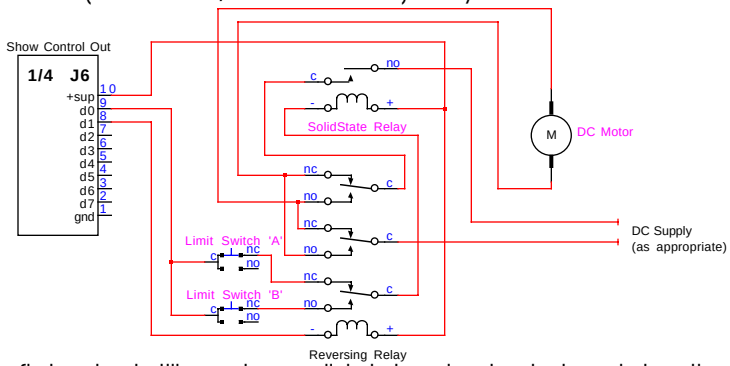


technique can be extended with additional switches and outputs to provide many different stopping points.

If you need to reverse the motor and run between two limit switches, the system can get a bit more complicated.



This is often used with electric linear actuators, A second 'direction control' output is needed for a DPDT (Double Pole, Double Throw) relay for a 'split capacitor' AC motor, or a 3PDT (Three Pole, Double Throw) relay for a DC Motor. The



first output still runs to a solid state relay to start and stop the motor. The second output is used to select the direction the motor will run (always set the direction before the motor is started). Some motors can not be reversed while running. •

Wireless DMX-512..... continued from page 1:

controller that became the Bt-Servo, we found several radios which would have been perfect, if it weren't for space constraints. As a spinoff, we will be releasing a new wireless DMX-512 and serial data link.

The radios we are using are preapproved for worldwide use, operating in the 2.4 GHz frequency range. They are rated for a line-of-sight range of about 10,000 feet. This should allow it to cut through the interfeence (and walls) found on most job sites! In addition to transmitting a full 512 channel universe of DMX-512, there is secondary 9600 baud serial link. It can be used to configure the control system or download your completed shows. •

Brick Brain With 'Atomic' Clock

The BS-BRN-CRD Smart Brick 'Brain' has a scheduling and automated playback features similar to the clock option on the Mp3-50 repeaters. It has used a factory laser-trimmed real time clock to trigger shows.

'Atomic' Clock

The 'Atomic' clock option has been so successful on the Mp3-50s, that we have added this feature to the Brick Brains as well.

To get the 'Atomic' Clock option with your next Smart Brick Brain, order the Mp3/50 'Atomic' clock upgrade. •

Portable PC•MACs License..... continued from page 1:

exactly as before (albeit with a LOT of enhancements we are adding this year!). You can call us to order a software upgrade over the phone and we will issue a 'key' number which will immediately enable the upgraded program features. Unlike the old key, this software key will only work for two weeks. During this time. we will send you a USB 'Dongle'. Once this arrives, it can be plugged into this, or any other PC, and it will enable the enhanced features of PC•MACs. The dongle can be used on any PC, albeit one at a time. If your computer dies (or is killed), you can simply move the dongle to the replacement PC.

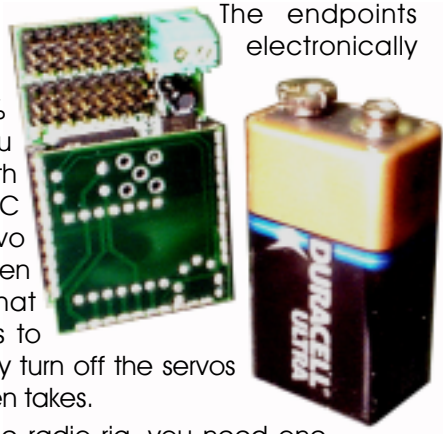
Customers who order the upgraded PC•MACs software with their equipment will receive a USB 'Dongle' with the rest of their order. Just plugging it in will enable the upgraded PC•MACs features, so they never need to call us for a license number.

For customers with existing software keys, the new version of the program will start a two week timer on your existing key. During this time, you should order the Dongle Upgrade so that we can get the USB 'Dongle' to you before the software license expires. Your RealTime upgrade will become portable as soon as you receive your new a USB 'Dongle'. If you want to keep your software license as it now exists, do not load or run the new versions of PC•MACs. •

Wireless Servo Controls..... continued from page 1:

To build the Bt-Servo, we added a radio transceiver and shrunk the circuit of SER-DMX by 2/3. It is now just a tad bigger than a 9 volt transistor radio battery.

The Bt-Servo controls up to sixteen ServoMotors at 8 or 12 bits of resolution. In either case, the servo data is up-sampled to 60 Hz and processed at 16 bits of resolution for maximum smoothness. The endpoints for each servo are set electronically through the Bt-Servo. You get about 50% greater stroke than you can typically achieve with a commercial RC transmitter. The Bt-Servo can be set to EaseIn when it senses anything that might cause the servos to jump, and automatically turn off the servos to save batteries between takes.



With a model airplane radio rig, you need one transmitter for each and every receiver. With the number of servos we needed to control, this wouldn't be practical technically or economically. Each transmitter 'base station' receives DMX-512 or RealTime serial data from a PC•MACs system and transmits data for up to 128 eight bit wide channels. This will typically control 128 ServoMotors at 8 bits of resolution, or 96 if using 12 bits of resolution. Each radio has 49 software selectable frequencies, so interference between radios is easy to avoid.

Because the radios we used for the Bt-Servo and base station are actually transceivers, we are able to communicate in both directions. The Bt-Servo can be configured wirelessly, and will report its status (things like battery voltage) back to the base station.

Gilderfluke & Co.'s Greatest Hits On CD-ROM

We are now distributing all of our printed material and software on a single CD-ROM. Every manual, cut sheet, and piece of software we offer is all on one disk. These are available with most purchases, or for a nominal charge. •

Gilder WEB Page

Our web site lives on a little iMac, and is connected to the Internet by dual T1 lines. With in-house web hosting, all documents are updated immediately.

Price lists, Manuals, Cut Sheets and even these newsletters (in color!) are available twenty-four hours a day, seven days a week from anywhere in the world at:

http://www.gilderfluke.com

Classes Anyone?

The spacious quarters at Gilderfluke Towers has a permanent display area where we offer classes in Gilderfluke Technology. We know that our stuff is pretty easy to learn to operate, but if there is sufficient interest in formal classes, they will be scheduled.

If you are interested in training on Gilderfluke & Co. equipment, please contact Dru Smith at 818/840-9484 in California or Toni Brown at 407/354-5954 in Florida. •

Custom Design Work

As time allows we do custom design work. Most jobs are for clients that need a product to do a specific job that none of our off-the-shelf boards will do. In most cases these have been incorporated into products produced by our clients. Most involve DMX-512 in one way or another. •

Field Installation & Service

Gilderfluke technicians are available for installations worldwide. For installations outside our immediate area (Los Angeles, California and Orlando, Florida), you will need to pay all the usual transportation expenses (business class or better airfare, hotel, food, and a reasonable per diem) in addition to the fee for the technician.

Our Animation Control and Digital Audio Systems are designed to be as easy as possible to install. With hundreds of our systems installed each year, we are asked to actually go on site only a few times each year. •

Gilderfluke Show Plans

We are scheduled to exhibit at the following trade shows and conventions. Most of the equipment described in this newsletter will be on display at these shows. We have free passes for many of them, so contact us if you would like to attend.

November 19-22 2003	IAAPA (International Association of Amusement Parks and Attractions), Orange County Convention Center, Orlando, Florida - Booth #1449
November 21-23 2003	LDI (Lighting Dimension International), Orange County Convention Center, Orlando, Florida - Booth #369
March 12-16 2004	Halloween Expo, Rosemont Convention Center, Rosemont, Illinois - Booth #3437

Our Two Most Asked Questions

In almost twenty years we have been in business, the second most commonly asked question is where our company name came from.

Eli Gilderfluke was a cartoon character who appeared in railroading trade magazines in the middle of the 19th century. More or less a precursor of Rube Goldberg, He developed strange inventions for steam trains. These were things like a big scoop to catch the exhaust coming out of the smoke stack and feed it back into the engine's firebox.

The answer to the most commonly asked question is: '***No, we don't build animated figures***'. •

Who Are We?

Gilderfluke & Company was founded in 1983 to build Animation & Show Control Systems for theme parks, museums, and other entertainment venues. In 1988 we added audio systems to our product line, and became the first company to be able to provide the entire electronics package for your animated show or attraction.

We currently deliver an average of more than one Animation & Show Control Systems a day. We are the only company that delivers complete, off-the-shelf Animation & Show Control Systems from stock. Most of our systems are bought by large Animation Manufacturers for incorporation into their shows.

Our **PC·MACs** Animation & Show Programming Systems were the first to run under Microsoft's Windows. It is still the technological leader among Animation Programming Systems. Our **'Brick' Show Control Systems** are the largest selling Animation & Show Control Systems in the world. These are modular systems which can be used to control any sized shows you can imagine.

Our Digital Audio Systems are led by our **Mp3-50** Industrial-Strength Mp3 players. These store audio on standard SmartMedia Flash cards for any installation where you need a sound to play reliably and with zero maintenance; forever. Audio systems with from two to thousands of outputs are available.

The Mp3-50 players are also available with an option that adds eight or forty Show Control outputs to them. This turns then into a complete Audio and Show Control playback solution.

GILDERFLUKE & CO., Inc.
205 SOUTH FLOWER STREET
BURBANK, CALIFORNIA 91502-2102
818/840-9484 • 800/776-5972
FAX: 818/840-9485
http://www.gilderfluke.com

GILDERFLUKE & CO., Inc. EAST COAST/FLORIDA OFFICE
7041 GRAND NATIONAL DRIVE, SUITE 128d
ORLANDO, FLORIDA 32819
407/354-5954
FAX: 407/354-5955

- **Mp3-50: The First Year**
- **Wireless Servo Control**
- **Twenty Years, more or less...**
- **Portable RealTime License**
- **Wireless DMX-512**
- **New in PC·MACs**
- **Keyboards for Programming**
- **Video Playback Solutions**
- **Sounds in the Woods**
- **Coming Soon**
- **New Analog Valves**
- **Solid State Relay Pack**
- **IR Sensors**
- **Controls for Motion Bases**
- **Doing More With Less**
- **Motor Animation**
- **Brick Brain w/Atomic Clock**
- **Greatest Hits CD-ROM**
- **Gilderfluke Show Plans**
- **Custom Design Work**