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

Gilderfluke & Co.
ROBOTICS & SOUND SYSTEMS
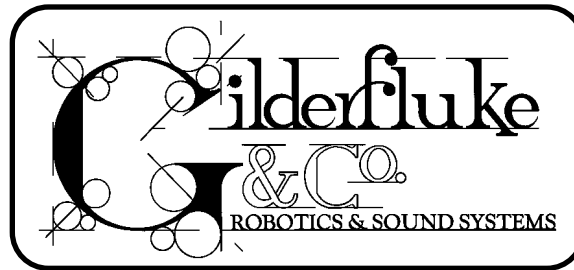
All the News that we could jam into a little under 8 pages

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

Winter 2004 - 2005 | **http://www.gilderfluke.com** | Number 13

Mp3-25:
The Audio 'Hockey Puck'

Hot on the heels of the success of our Mp3-50s, we have introduced the Mp3-25. We like to think of it as similar to the 'Little Cricket' ray guns from "Men in Black". It is tiny, but makes a heck of a lot of noise!

The Mp3-25 is a cut down version of our Mp3-50 Audio Repeaters. Aimed at those who don't need all the features of the Mp3-50s, but who still need a high quality, high capacity repeater.

Seen Any Good
Movies Lately?....

This year several major features used Gilderfluke & Company equipment as an integral part of their productions. These include all of the most recent editions of the Harry Potter, Star Wars and Child's Play series, "Peter Pan" and "Racing Stripes" (due out in January). After George Lucas saw a figure programmed to lip sync to a Lipton Tea commercial (the programmer was just goofing around), he declared that he could now get

'Instant' Triggering for Mp3s

Since their release, we have been working to decrease the triggering time for starting sounds on our Mp3-50s. In our latest firmware it is virtually instantaneous (a few milliseconds). This makes lining up the sound when programming a show a breeze. If the sound starts at one second into the show, you simply put the start signal at one second in! No offsets are needed. Download it and give it a try! •

Coming Soon?

A completely digital Electronic Feed-Back card (EFB) has been our most often started, and least often finished product. We have designs going back at least ten years, and quite a pile of prototypes to show for it! They just weren't 'good enough' to make the jump from R&D into production. We now believe that the current incarnation might actually make it. The BR-EFB is in development, so only time will tell!

An EFB card is used to close the feedback loop in proportional analog movements. It compares a command position with the actual position of the movement (measured by a position sensor on the movement), and then opens or closes valves (or turns on and off motors) as needed to move until the command and actual positions match.

Projected features of the BR-EFB:
- High speed 25 MIPs microcontroller
- Closes eight PID feedback loops, or four PIDD loops with compliance (two plus two with differential compli-

resco to Distribute
Gilderfluke-Developed
Wireless DMX-512

At last year's IAAPA and LDI show, we had a prototype of a DMX-512 transmission link on display. This was developed as a spinoff from the R&D work that was needed to

New & Improved BR-SDC

The BR-SDC is our 'get out of jail free' card. Not much bigger than a cigarette lighter, it takes ten switch closure inputs to trigger serial string outputs. It is often used to control projectors, video players, and any other serially controlled devices. It is so small that it is often Velcro'd right on the back of whatever it's controlling.

The BR-SDC 'knows' about several common types of video players, and the commands to access and play a video from them are built in. Other video players and devices are supported by writing your own strings.
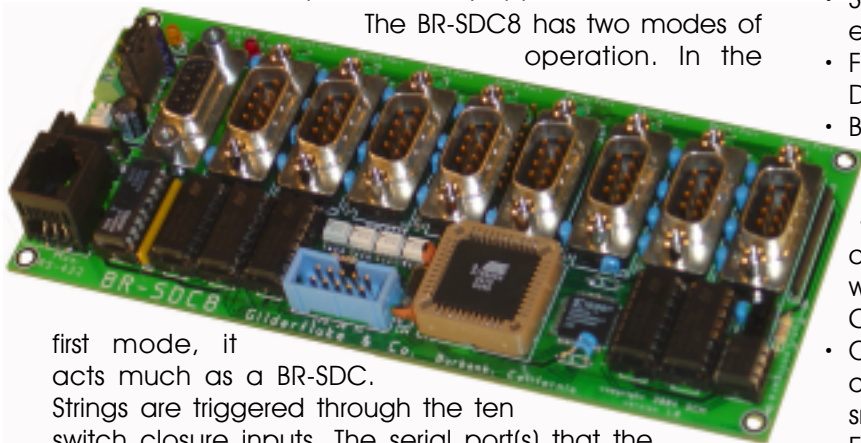
Improvements in the BR-SDC include:

- Any character can be sent or received (earlier firmware reserved some characters for internal use).
- Longer Strings! Up to 127 characters each.
- Baud rates from 1200 through 115.2 KBaud.
- Binary mode allows it to be used with binary coded keypads to access all 255 shows on a Mp3-50.
- Optional RS-422 serial port instead of std. RS-232.
- Characters entered as ASCII are displayed as ASCII. •

BR-SDC8 Serial Multiplexer

So if the BR-SDC is the 'get out of jail free' card, what are you supposed to do when you are sentenced to eight consecutive life sentences without the possibility of parole? Use the new BR-SDC8!

The BR-SDC8 is like the BR-SDC, but with eight multiplexed RS-232 ports added. It can be used to control a bunch of projectors or video sources. It is not as powerful as an Alcorn-McBride V-16, but a fraction of their cost, two BR-SDC8s can take their place in many applications.
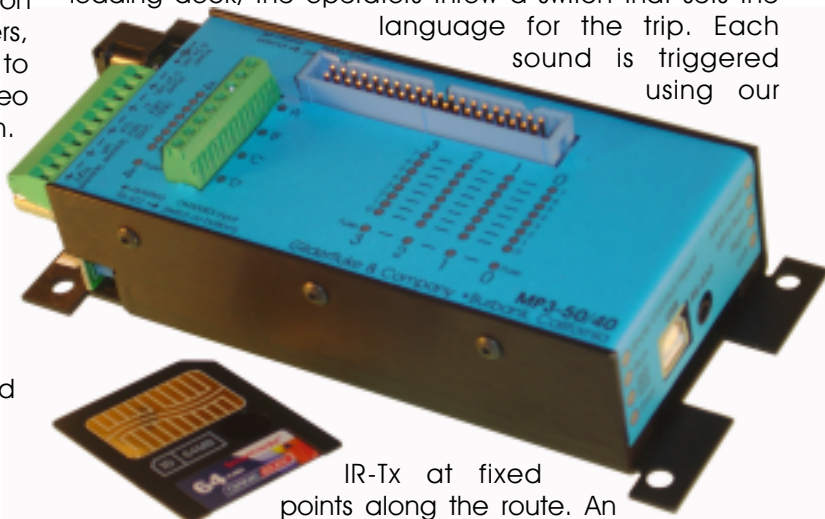
The BR-SDC8 has two modes of operation. In the first mode, it acts much as a BR-SDC. Strings are triggered through the ten switch closure inputs. The serial port(s) that the strings are sent to are set using commands embedded in the strings, or simple 'AT+++' serial commands sent to the multiplexer and configuration RS-232/RS-422 serial port.

The other mode of operation allows the multiplexer RS-232/RS-422 port to be routed to one or more of the eight RS-232 serial ports. This is used when you need a Smart Brick Brain or PC to control up to eight serial devices. •

Multilingual Mp3-50s

We had a recent application for several shows in India that needed to be presented in a number of different languages. Since you can store 255 different sounds on our repeaters, there was plenty of room. Normally you just bring in a 'start' signal that requests the sound in the appropriate language. Only problem was that in this application, the sound is carried aboard a boat. As the boats leave the loading dock, the operators throw a switch that sets the language for the trip. Each sound is triggered using our IR-Tx at fixed points along the route. An IR-Rx on each boat relays the requested spiel message to the Mp3-50/8, and that starts the shows and sounds.

We added code to the Mp3-50s that allow you to set the number of languages needed when using IR inputs. The sound request from the IR port is offset, based upon the condition of the switch inputs. In this way, the Mp3-50s can support up to fifteen different languages. •

BR-EFB...... continued from page 1:

ance). It can also be used to control up to four bipolar stepper motors.
- Sixteen bit feedback allows position commands in eight or twelve bits of resolution.
- Flash memory for animation data storage, or accepts DMX-512 or serial data for position commands.
- Backlit 2 x 16 LCD screen for status and adjustment.
- Front Mounted rotary encoder with push switch for manually jogging positions and minor adjustments.
- PWM outputs rated at 5 amps continuous. This allows direct connection of small electric motors as well as pneumatic and hydraulic valves. Supports Clippard's new low cost proportional valves.
- Oversampling divides each step of the position command into thousands of little steps for the smoothest possible moves.
- Eight optically isolated inputs for limit switches.
- Dedicated fail-safe 'enable' input for all axis.
- Self adjusting PID loop constantly tweaks itself to allow for temperature and wear variations.
- Initial setup routines automatically null the valves, find the end of stroke of the cylinders, and correct for phasing.
- All automatic settings can be overridden if desired. •

Video Playback Solutions

The number of choices for video playback from Gilderfluke & Co. continues to grow! Last year we added the Video Chameleon. This year, we have the less expensive v-DVXF100. A simpler unit you can use when all you need is a video player that will power up and play without being triggered.

Unlike the Video Chameleon, there is no software, configuration or setup needed by the v-DVXF100. The v-DVXF100 just wants to see Mpeg files on its removable Compact Flash card. With a built in USB 2.0 port, you can download right to the v-DVXF100, or remove the card and plug it into your PC or Mac to do the download. When the v-DVXF100 powers up, it will simply start playing any video files it finds, and keep playing them until you pull the plug. As with the Video Chameleon, there are absolutely NO moving parts in the v-DVXF100. That means it should last indefinitely, even if it is playing 24/7! In fact, these units, like most modern electronics will probably last longer if they are run 24 hours a day. Just leave them on and power down the monitor or projector they are feeding!

The cost of memory for video playback continues to drop. As of this writing, the price for a 1 GByte Compact Flash card is about $130. This gives you enough storage for about 40 minutes of DVD-quality video! •
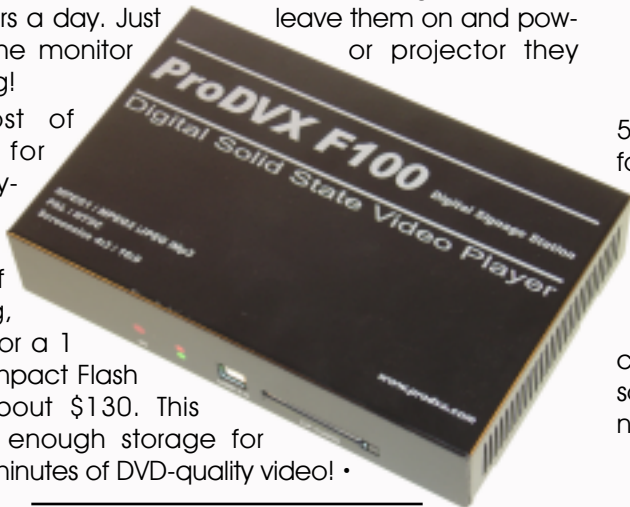
Video Chameleon Adapter

The Video Chameleon trigger inputs are designed to accept switch closures on a 20 pin header. We have an application note on our web page that shows how to connect this header to the wiring from any of our digital output cards (BR-MiniBrick8, BR-MultiBrick32, or Z-Brick).

We now also have a ready made adapter for the video chameleon to adapt it to the standard ten position ribbon cable we use for digital outputs. Just let us know when you order your Chameleon if you need the adapter as well. •

Leapfrogging DRV-05s

The DRV-05 is a special output driver which, instead of turning the power on and off, simply reverses the polarity of the DC presented to the load. If you hook up a bunch of light bulbs to a DRV-05, they would just stay 'on'. They don't care about polarity. However, if you attach eight DC motors, they will reverse rotation when the outputs switch.

What are they for? The DRV-05 is designed to be used with PEM leapfrog fountain jets. In a small installation, all you need is a BR-MiniBrick8, a DRV-05, and eight of these special water nozzles to build a leapfrogging fountain.
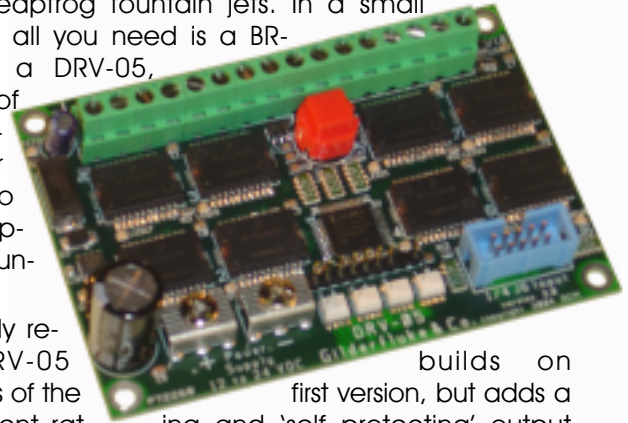
The newly revised DRV-05 builds on the success of the first version, but adds a higher current rating and 'self protecting' output drivers. If an output draws too much current, the drivers simply turn off like a circuit breaker. If the short circuit is still there when an output is switched again, it will remain off. If the short circuit has cleared, the DRV-05 returns to normal operation. The DRV-05 even has LED indicators to show when an output has tripped the internal circuit breaker. •

Worldwide 'Atomic' Clock

The 'Atomic' Clock option for the Mp3-50 and Smart Brick Brains is now available for clients Worldwide. The new worldwide clock module allows it to work with radio signals from Frankfurt, Germany; Colorado, USA; Rugby, England; Fukushima, East-Japan; and Kysushu, West-Japan.

As with any Mp3-50 with the 'atomic clock' option, you can set shows and sounds to play at any time of the day or night using its 365 day a year schedule. •
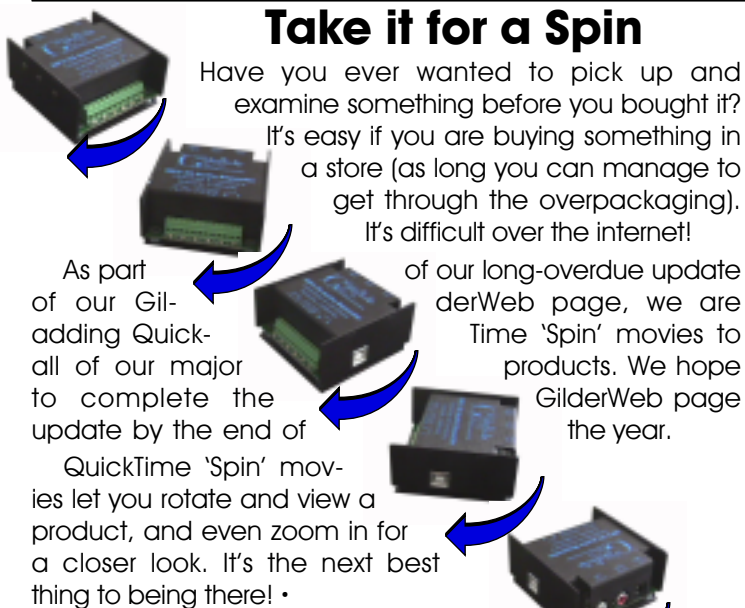
Application Notes

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. •

http://www.gilderfluke.com/app_notes.html

Take it for a Spin

Have you ever wanted to pick up and examine something before you bought it? It's easy if you are buying something in a store (as long you can manage to get through the overpackaging). It's difficult over the internet!

As part of our Gil- adding Quick- all of our major to complete the update by the end of

of our long-overdue update derWeb page, we are Time 'Spin' movies to products. We hope GilderWeb page the year.

QuickTime 'Spin' movies let you rotate and view a product, and even zoom in for a closer look. It's the next best thing to being there! •
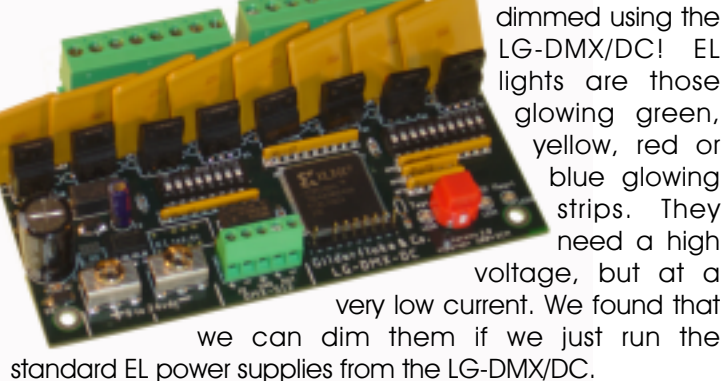
LG-DMX/DC

The LG-DMX/DC dims 12 to 24 VDC lights from a DMX-512 signal. It can also be used to control the speed of small DC motors. We originally designed the LG-DMX/DC with Disney's electrical parades in mind. It took them a few years, but they finally bought a bunch of them for just that purpose. In the mean time, lots of LG-DMX/DCs have been used for everything from the New York Metropolitan Opera to your neighborhood haunted house.

The 'Met' is using them to dim the lights on some movable set pieces. There, as on the Disney electrical parades, the lighting is powered by batteries.

The haunters use them because it allows them to run fully dimmed lights without any high voltage AC. The fire marshals love this! It also allows them to run lighting outdoors or in moist locations without having to worry quite so much about electrocuting someone.

In another happenstance, we also discovered for a Disney job that their 'they can't be dimmed' electroluminescent (EL) lighting can be dimmed using the LG-DMX/DC! EL lights are those glowing green, yellow, red or blue glowing strips. They need a high voltage, but at a very low current. We found that we can dim them if we just run the standard EL power supplies from the LG-DMX/DC.

We recently updated the design of the LG-DMX/DC to boost its output to 9 amps continuous on each of its eight outputs. (100 Watts @ 12 VDC, 200 Watts @ 24 VDC) •

The Mp3-25 is built around the same chips at the heart of the Mp3-50s. We eliminated the stuff needed to add the animation control found in the Mp3-50/8 and Mp3-50/40. That allowed us to build the Mp3-25s half the size of its big brothers, and at about half the cost.

Features of the Mp3-25 include:

- Stand alone stereo playback of standard Mp3 or .WAV audio files (up to 48 KHz / 16 bit). Up to 255 different audio files can be stored. Capacity is limited only by the size of your SmartMedia flash card.
- A surprisingly powerful eleven Watts per channel (twenty-two Watts total) onboard stereo amplifier that can be used with appropriate 8 ohm speakers. Screw terminals are used to attach the speaker wires.
- Two line level outputs can be used to feed line level Audio to external amplifiers or other audio processing equipment. A pair of color coded RCA jacks are used for the line level outputs.
- Two nonpolarized optically isolated trigger inputs with LED indicators. Easily attached to PLCs, alarm systems and other controllers, pushbuttons, motion detectors, foot pads, Through Beam and RetroReflective IR sensors. These inputs can be configured to ramp audio (0 to 9.9 second ramps) to preset levels, select and play specific sounds or select sounds from a preset list or randomizer. Individual sounds can be set to accept or ignore additional requests once it is already playing.
- Audio data is stored in standard SmartMedia cards. You can use the built-in USB port or move the SmartMedia card to your computer for high speed 'drag-n-drop' downloading.
- All configuration is done through a user friendly Windows-based program. You can set the volume, EQ, and what the optically isolated inputs do.
- Heartbeat & 'modulation' LEDs. Heart shows unit is alive, Modulation LEDs show audio being played.
- Sturdy aluminum enclosure. Mounts in 2-3/4" Augat Snap Track, or just Velcro or screw it down.
- One optically isolated 'running' status output. This output becomes active whenever the Mp3-25 is playing a sound. It can be used to trigger lights, relays, audio ducking mixers or anything else.
- Runs on any voltage from 9 to 24 VDC. Use 24 VDC for maximum output if using onboard amp. The low current draw allows Mp3-25s to run from batteries or solar cells where line power is unavailable.
- A 'Starter Kit' is available: Includes a USB cable, a 24 VDC 2.5 Amp supply and one 64 MByte SmartMedia.

If you need a rack-mountable system, or would like a system that combines Audio Player, Amplifier, Show Control and Lighting Control in a single package, please consider the Mp3-50 line of repeaters. A Mp3-50s with the 'Atomic' clock option allows 365-day scheduling for fountains, clock towers, carillons, churches and school bells. •

App. Note: Relay Options

Just what is a relay? It is a switch. Most switches are turned on and off by flipping a lever with your finger. A relay is turned on and off by an electrical signal.

Just why would you want to turn on an electrical switch with an electrical signal? Two reasons: Isolation and to control higher current and/or voltage loads. The digital outputs from our controllers are rated at 150 milliamperes continuous, or 500 milliamperes peak at up to 24 VDC. This is plenty of current to control small solenoid valves, LEDs and the typical loads found in animated shows. You need to put a relay on our outputs when controlling something that runs at a higher voltage or draws more current than our outputs will provide directly.

There are two basic kinds of relays. The older style is called 'electromechanical'. They have been around for 100 plus years. These relays use a coil of wire that turns into an electromagnet when current is passed through it. This electromagnet draws the two switch contacts together until they close, allowing current to flow through the contacts. Because there are moving parts and contacts, electromechanical relays have a finite life span, especially when controlling heavy loads. The arcing on the contacts as they open and close will inevitably erode them. This also generates electronic interference which can make noise in the audio system and potentially damage nearby circuits.

The newer styles of relays are 'Solid State'. They replace the electromagnet and contacts with an electronic switch (transistor, SCR, Triac, or other). **You will want to select solid state relays whenever possible.** The reasons for this are many: They last forever (if not overloaded), they are absolutely quiet, and they don't generate nearly as much electronic interference.

Whether electromechanical or solid state, relays are defined by their contact arrangements. The most basic
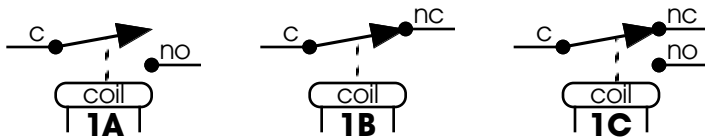
type is **1A** (also called 'normally open'). This has a single contact which allows current to flow when the coil pulls the contact towards it (the 'coil' in solid state relays is usually an optoisolator or equivalent). A **1B** (also called 'normally closed') relay is just the same, but power flows only while it IS NOT energized, and stops when a voltage is applied to the coil. The **1C** (also called 'double throw' or 'dt') arrangement combines the 1A and 1B. The 'Normally Closed' ('nc') contact is attached to the common 'c' connection when the coil is not energized, and the 'Normally Open' ('no') contact is connected to the common when it is energized. If there is more than one set of contacts, the relay is called 'double pole ('dp') or 'two pole' ('2p') for 2 sets of contacts, 'four pole' ('4p') for 4, etc..

Gilderfluke offers many different options for relays. As you

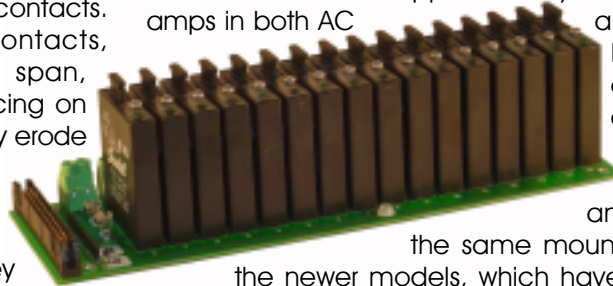might have guessed, most of our solutions are solid state:

DRV-03: This is a 4" x 2.75" board that contains eight solid state relays. Each of the eight outputs is rated for up to 9 amps continuously at 24 VDC. Input is by a standard 1/4 J6 ribbon cable connector. Available with or without manual 'hand/off/auto' switches.

SSR-FS: This is a small printed circuit board which allows you to mount up to eight 'hockey puck'-style solid state relays to a standard 1/4 J6 ribbon cable. These relays are available with voltage ratings to 500 VAC, and currents to the 125 amp range. Relays for DC voltages to 400 VDC and currents up to 40 amps are also available. We stock 25 Amp, 120/240 volt relays. Others are available for order. The SSR-FS is available with optional hand/off/auto switches.

PB-xx: This is actually a family of relays available from a number of different suppliers. Relays are rated for up to 3.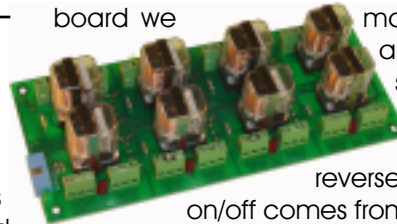5 amps in both AC and DC versions. Mounting boards come in 8, 16, 24 and 32 positions (16 position shown). You can mix AC and DC modules on the same mounting board. We like the newer models, which have replaceable fuses on the relays themselves. We make wiring adapters for all of the common mounting boards. The relays and mounting boards are also available from us.

RD-RLY: This is one of the two electromechanical relay boards we make. It has eight small relays which can be used when you need to provide a 'dry switch closure' to something. It is rated at 500 milliamperes per relay.

DPDT: This relay is the other Electromechanical relay board we make. It has eight relays which are typically used for speaker switching and motor reversing. This relay is switched only when the power is 'off' to reverse the direction of a motor. The on/off comes from a separate solid state relay.

LC-8SP: This is possibly the best bargain in relays. It is a 19" rack mount box with a line cord input, and eight duplex outlets. Eight solid state relays switch on and off the outlets. All you have to do is plug in whatever 110 VAC devices you want to control. We provide the LC-8SP with an adapter for our digital output cables. •

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

CGI-quality lip sync live on the set using Gilderfluke & Co. equipment. Rumor has it George Lucas now wants to reshoot some parts of the earlier 'episodes' using our gear.

In Matt Stone and Trey Parker's "Team America", our equipment was in <u>every</u> shot (stick around for the closing Gilder-credits!). Each of the 100 or so heads has a Bt-Servo in it. These are used to control the servos that run the mouth (jaw, upper lip, lower lip, smile and pucker) and eyes (left/right, lower lid, upper lid) and eyebrows. There are a total of nine servos <u>and</u> the Bt-Servo in each fist-sized head! An old friend of ours, Dave Nelson designed the heads. The Chiodo Bros. did the final figure finishing and on-set work.

Bt-Servo

The biggest problem the puppet crew had was trying to keep track of all the heads once shooting started. There were about 250 or so different character faces that were on any of the 100 different heads on any given day. The puppet wranglers had to actually institute a photobadge ID System. The badge for each head showed what face it was wearing, the DMX channels and radio channel being used.

The control data for the figures is a mix of programmed and live Puppeteering. It is generated using PC·MACs running on standard laptop PCs and feeding MACs-USB boxes. Their transmitters. servos on frequencies. were used to characters! fraction of

DMX-512 outputs go to the Bt-DMX Each transmitter can control up to 128 each of 49 software selectable In some crowd scenes, several PCs control 400 to 600 servos in 50 or more If you were to even try to fire up a this number of servos using standard RC gear, you would get nothing but radio interference and lots of servo jitter!

PC·MAC's 'mix' functions were used extensively to minimize the number of puppeteers needed to run all of these figures on the set. This allowed a few 'hero'

Bt-DMX

puppeteers to concentrate on the 'lead' characters, while just a few more puppeteers ran all the background.

The mouths, although capable of fully articulated speech, looked 'too good' for the 'puppet look' of the movie. Most shots used only the jaw and lips.

Matt often puppeteered the mouths live on the set as he and Trey improvised the dialog. Live microphones recorded their dialog so that it could later be written down and dubbed in properly. Most movie productions prerecord the dialog and preprogramming the figures well in advance of shooting. With a script that was never the same from minute to minute, that just wasn't going to work for this production. The flexibility and features built into PC·MACs allowed them to change their production techniques on the fly with no modifications to our systems.

The Bt-DMX and Bt-Servo were designed for "Team America". The Bt-Servo is a wireless adaptation of our 'wired' SER-DMX. Both have the capacity to control sixteen Servo-Motors at 8 or 12 bits of resolution. Bidirectional radio communications with each Bt-Servo allows you to configure each servo, and even check on things like the battery levels from the PC. Endpoint adjustments are made to keep the servos from moving further than wanted, with NO resolution loss. The servos can be set to automatically power down between takes to stretch battery life. ·

Distribution in Mainland China

If you happen to find yourself needing Gilderfluke & Company equipment while in China, please give our newest distributor a call:

Shanghai Foremost Multimedia Co, Ltd.

http://www.foremostgroup.com/

If you are interested in becoming a distributor for Gilderfluke & Co. equipment, please contact us. ·

## Vintage vs. Obsolete

Legally speaking, vintage products are those that were discontinued more than five and less than seven years ago. Obsolete products are those that were discontinued more than seven years ago.

Manufactures aren't obliged to provide service or parts for any 'obsolete' products, and only for 'vintage' products within the State of California (there's a law about this!).

At Gilderfluke & Co., we aren't like most manufacturers. We will do our best to repair any piece of equipment that we made, and will continue to do so as long as the parts are available. We only rarely see these 10, 15 or 20 year old Gilderfluke & Co. systems back for service.

Of course, we will try to convince you to replace the really old stuff with new gear, since it usually costs much less and does so much more. Ain't technology grand! ·
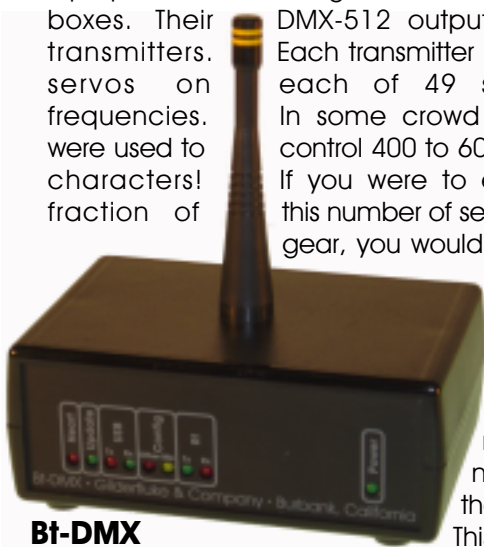
complete the Bt-DMX and Bt-Servo that we were doing for Paramount pictures.

The response to these prototypes was strong. In fact, much stronger than we had ever expected!

We have recently closed a deal with Rosco, to distribute these units as one of their own products. Rosco is one of the largest distributors of professional lighting equipment in the world. This gives the Rf-DMX immediate worldwide clout and distribution. Rosco will be using their own case, so expect it to look different from this photo.

Features of the Rf-DMX include:

- Sends 512 DMX-512 channels per link.
- Point to point (one transmitter/one receiver), or point to multipoint (one transmitter/many receivers).
- 'One button' configuration for most jobs.
- Worldwide 2.4 GHz operation.
- 200 milliwatt output power for range of up to 500 feet indoors, up to 10,000 feet outdoors (greater range is possible using a higher gain and/or directional Wi-Fi antenna).
- Antenna is attached by standard RPSMA connector.
- Up to 77 non interfering links per location.
- Bidirectional communications. All radios can be configured from a single PC.
- Bidirectional RS-422 serial link along with the DMX-512. Allows wireless configuration of most Gilderfluke cards.
- USB 2.0 serial port for configuration and status. •

RF-DMX

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 dual 1 GHz G4 xServe, connected to the Internet by a dedicated DSL line. 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. 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.

What could be worse than IAAPA in Atlanta next year? IAAPA there for the next two years.

November 17-20 2004	IAAPA (International Association of Amusement Parks and Attractions), Orange County Convention Center, Orlando, Florida - Booth #1449
March 4-8 2005	Halloween Expo, Rosemont Convention Center, Rosemont, Illinois
November 16-19 2005	IAAPA (International Association of
November 15-18 2006	Amusement Parks and Attractions), World Congress Center, Atlanta, Georgia

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 System a day. We are the only company that delivers complete, off-the-shelf Animation & Show Control Systems from stock. Most systems are bought by Animation Manufacturers for incorporation into their shows. They are simple enough to be installed by anyone.

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 size show 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.

Mp3-50 players are also available with an option that adds eight or forty digital Show Control outputs, DMX-512, MIDI and serial ports to them. This turns then into a total Audio and Show Control playback solution. The 'Atomic Clock' option allows shows/sounds to be scheduled. •
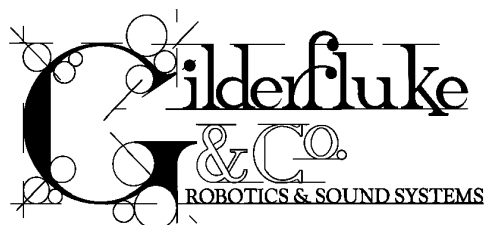
- **Mp3-25: Audio Hockey Puck**
- **Any Good Movies Lately?**
- **Instant Triggering Mp3s**
- **Long Anticipated BR-EFB**
- **Rosco & Wireless DMX-512**
- **BR-SDC and BR-SDC8**
- **Multilingual Mp3-50s**
- **Video Playback Solutions**
- **Video Chameleon Adapter**
- **DRV-05 Updated**
- **Worldwide 'Atomic' Clocks**
- **Take it for a Spin**
- **LG-DMX/DC Low Volt Dimmer**
- **App. Note: Relay Options**
- **International Distribution**
- **Vintage vs. Obsolete**
- **Field Installation & Service**
- **Greatest Hits CD-ROM**
- **Gilderfluke Show Plans**
- **Custom Design Work**