

Gilder Newsletter

Views and News from the World of Gilderfluke & Co.

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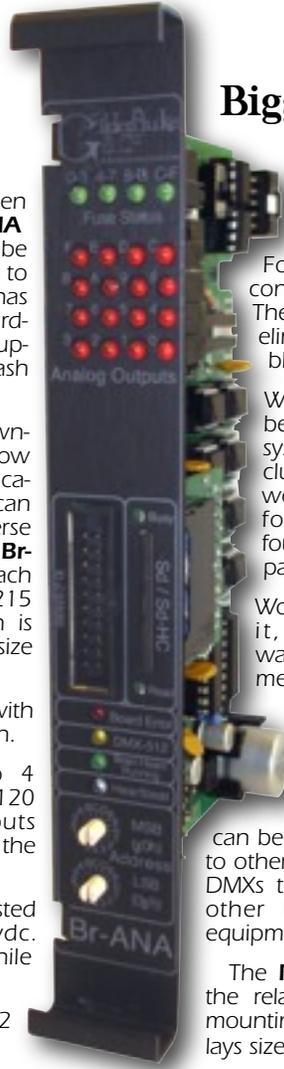
Br-ANA with Sd Flash Cards

A few years ago, our sixteen channel analog output **Br-ANA** became our last product to be switched from removable Eproms to on-board flash show storage. It has now become the first of the card-cage mounted 'Bricks' to be upgraded to use removable Sd flash card storage.

Using the new v1.1 AutoDownload files from our **PC•MACs** Show Programming Software, show capacity is virtually unlimited. You can hold a whole 512 channel universe of DMX-512 lighting data on the **Br-ANA**, and up to 255 shows, each of which can be up to 16,777,215 frames long! The only limitation is now the 4 GBytes maximum file size under using FAT32.

- Sixteen 0-10 vdc outputs with eight or twelve bits of resolution.
- Outputs are oversampled to 4 times the frame rate (typically 120 Hz). This makes the outputs smooth enough to run even the largest motion bases.
- Analog endpoints can be adjusted anywhere between 0-10 vdc. Endpoints don't interact while adjusting.
- Stores and transmits up to 512 channels of DMX-512 data.

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Bigger PB-DMX Memory

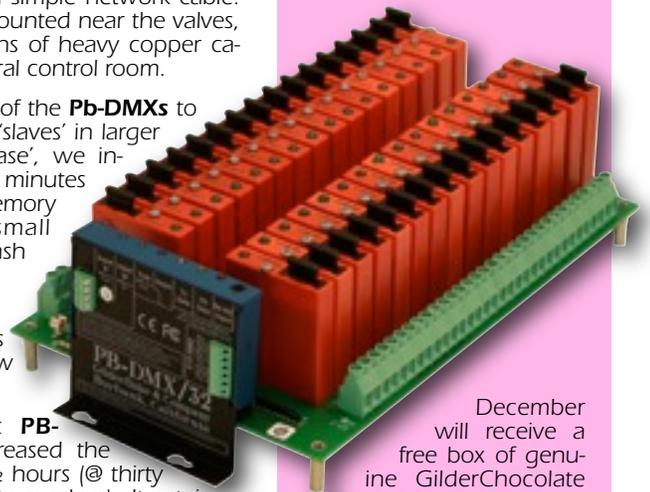
The **Pb-DMX** has rapidly become a mainstay for controlling animated fountains. With a capacity of 3.5 amps on each relay output, it will directly drive the solenoid valves fountains use. Fountains with thousands of jets can be controlled through a simple network cable. The relays can be mounted near the valves, eliminating long runs of heavy copper cables back to a central control room.

We expected most of the **Pb-DMXs** to be used as output 'slaves' in larger systems. 'Just in case', we included about ten minutes worth of show memory for controlling small fountains and splash pads.

Wouldn't you know it, some clients wanted more show memory!

On the latest **PB-DMXs** we increased the memory to 9-1/2 hours (@ thirty fps with thirty-two relays). It retains the networkability, so a single **Pb-DMX** can be told to act as the 'master', sending data to other **PB-DMX** 'slaves' (up to fifteen more **PB-DMXs** to control up to 512 relays), or to any other DMX-512 compatible dimmers and equipment.

The **PB-DMXs** are available with or without the relay mounting boards and relays. Relay mounting boards come in 8, 16, 24, or 32 relays sizes. Relays can be AC, DC, or mixed -G



'Tis the season to get FREE Chocolate!

First time customers placing orders, and existing customers placing order of over \$1000 during

December will receive a free box of genuine GilderChocolate in a gift box.

This offer is valid for orders shipping anywhere in North America. -G



New PC•MACs Software at IAAPA 2009!

PC•MACs is the best selling full featured Show Programming software in the World. **PC•MACs** is the only software designed from the ground up for programming animated shows and attractions. Last year we announced massive new features that we were working on for this year:

- Number of channels increased to 32 full DMX-512 Universes! You can use this for 16,384 eight bit analogs, 131,072 digital functions or any combination of digital and analog outputs. Analog resolutions of eight, twelve, sixteen, twenty-four and thirty-two bits are fully supported.
- Any number of sequencers to support multi-sequencer hardware like the **Bs-Brain4**. This allows multiple independent shows to be played through one network or player. Any channel can be assigned to any sequencer. "Current Sequencer" mode plays only one sequencer's channels.
- Dongle Key and USB drivers for W2K, XP, Windows7 (Win7 driver for **MACs-USB** coming soon)
- Up to ten simultaneous consoles, including existing Serial Consoles, Mackie USB consoles, and soft console. Consoles can be up to 32 analog channels wide. New consoles support analogs/

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Gilder Gear Comparison Chart

GilderGear Part Number	Show Control	Audio Player	Other Features	DMX-512 Input	DMX-512 Output	Show Control Outputs	Trigger Inputs	Clock/Calendar Schedules	Serial Port(s)	Memory	Flash Card	Starter Kit	Notes
Sd-10		Yes (stereo)	Line Level Out				2) Opto + Serial		Rs-232 (optional)	Sd Card up to 32 GBytes	MMC/Sd/ SdHC	Yes	CD player Replacement
Amp-50			50 Watt Digital Class-D Amp										Equiv. to a 200-250 Watt Amp
Sd-25		Yes (stereo)	50 Watt Amp Mixer Input			1 Status Output	2) Opto + Serial		Rs-232/422 (optional)	Sd Card up to 32 GBytes	MMC/Sd/ SdHC	Yes	Equiv. to a 200-250 Watt Amp
Sd-50/0		Yes (stereo)	100 Watt Digital Amp				8) Opto + Serial		Rs-232	Sd Card up to 32 GBytes	MMC/Sd/ SdHC	Yes	Equiv. to a 400-500 Watt Amp
Sd-50/8	Yes	Yes (stereo)	100 Watt Amp 8 ServoMotors*	1 Universe (512 Chan.)	1 Universe (512 Chan.)	Up to 8 Digital	4+8* + Serial	Yes (GPS Optional)	1) Rs-232 1) Rs-422	Show: 4 MBytes	MMC/Sd/ SdHC	Yes	* Uses 8 Show Control Outputs
Sd-50/40	Yes	Yes (stereo)	100 Watt Amp 8 ServoMotors*	1 Universe (512 Chan.)	1 Universe (512 Chan.)	Up to 40 Digital	4+8* + Serial	Yes (GPS Optional)	1) Rs-232 1) Rs-422	Show: 4 MBytes	MMC/Sd/ SdHC	Yes	* Uses 8 Show Control Outputs
Br-MiniBrick4	Yes					4 Digital	1) Opto		Optional	8 KBytes			Our smallest controller
Br-MiniBrick8	Yes		2 PWM ServoMotor Outputs	1 Universe (512 Chan.)	64 DMX-512 Channels*	8 Digital 2 Servo	2) Opto + Serial		Rs-232	64 KBytes			* DMX-512 outs eat up Memory
Br-MultiBrick32	Yes			½ Universe (256 Chan.)	Feethru	32 Digital	4) Opto + Serial		Rs-422	512 KBytes			Runs stand-alone or in Smart Brick Brain
Br-ANA	Yes			1 Universe (512 Chan.)	1 Universe (512 Chan.)	16 Analog	4) Opto + Serial		Rs-422	Sd Card up to 32 GBytes			DMX-512 to Analog Card
Z-Brick (Br-ZBR)	Yes			1 Universe (512 Chan.)	Feethru	32 Digital							DMX-512 to Digital Card
Bs-Brain4	Yes		Simple Reader, DVD Control	1 Universe (512 Chan.)	4 Universe (2048 Chan.)		10) Opto + Serial	Yes (GPS Optional)	2) Rs-422	Sd Card up to 32 GBytes	MMC/Sd/ SdHC		Plays 8 asynchronous shows
Pb-DMX/8, /16, /24 or /32	Yes		3.5 Amp AC or DC Relays.	1 Universe (512 Chan.)	64 DMX-512 Channels*	up to 32 3.5 amp Relays	2) Opto + Serial		Rs-232	4 MBytes			* DMX-512 outs eat up Memory
MACs-USB	Yes		Simple, DMX & Console in/out	1 Universe (256 Chan.)	1 Universe (256 Chan.)		4) Opto						Turns PC into Show Control System
Br-SDC			Serial Device Controller				10) Opto		1) Rs-232 or Rs-422				Runs DVD players in kiosks, etc.
Br-SDC8			Serial Device Controller/Mux.				10) Opto + Serial		8) Rs-232 1) 232/422				Runs 8 DVD players or other serial gear
SER-DMX	Yes		16 PWM Servo-Motor Outputs	½ Universe (256 Chan.)	Feethru	16 PWM Outputs			Rs-422				DMX-512 to pwm ServoMotors
BrightSign HD-410		Yes (stereo)	1080p, 1080i, 720p, 576p, 480 Video Player				8 TTL (incl. adapter)		Rs-232	Removable Sd or SdHC	Sd or SdHC	Yes	Up to 1080p, MPEG-2, H.264/MPEG-4
DVX-F150		Yes (stereo)	NTSC/PAL Video Player							Removable Sd/CF Card	Compact Flash, SdHC		JPEG, MPEG1, MPEG2, MPEG4
LG-DMX/DC			12-24 vdc DMX-512 Dimmer	1 Universe (8 Chan.)									DMX-512 to DC Dimmer
DP-DMX20L			115 vac DMX-512 Dimmer	1 Universe (4 Chan.)									Other dimmer sizes available



Video in HD or Standard

We are now distributing the **BrightSign** line of HD players. We have added hardware and scripting to make them easier for you to use. They can be used in any triggered or looping application where you need video up to a full 1080p (1080i, 720p, 576p, 480p are also supported). These players use SdHC flash cards for storing video, and have a variety of input and output options, including RS-232, switch closures, and ethernet.

Our low-cost **DVX-F150** is the upgrade to the **DVX-F100**. It is used when you need to have a standard PAL or NTSC video that simply loops for as long as power is applied to the unit. You can use either a Sd or Compact Flash card for storage, and a VGA output has been added to the S-Video and composite outputs.

Being completely solid state, both the **BrightSign** and the **DVX-F100** will play for years with little or no maintenance. -G



IR for Sd-10/25

The **Sd-10s** and **Sd-25s** have always had the option of adding a **Sd-RS232** serial port to them. That's what that little black plastic cap is there for. It covers where the serial port pokes through.

Now we have built a new IR receiver that will fit into the same spot on a **Sd-10** or **Sd-25**. Its lens simply pokes through the hole where the **Sd-RS232** plug would normally go. Like the **Sd-RS232** adapter, this is a user installable option.

The **Sd-10s** standard firmware does not include IR Mode. When ordering **Sd-10s** for use with the **IR to Sd10/25**, you will need to request that the firmware includes IR Mode. -G



Tip Using IR Transmitters and Receivers

Our **IR-Tx** and **IR-Rx** can be used with **Sd-25s** and **Sd-50s** to trigger specific shows and sounds at specific points along a vehicle's path. The typical applications are on trains, hayrides, trams, or other vehicles that follows predefined or random path.

The **IR-Rx** receivers are mounted on any number of vehicle(s). Up to 255 **IR-Tx** transmitters are mounted along the vehicle's path, wherever a sound or show needs to be triggered. If used outdoors, you may need to shade the receivers from direct sunlight.

Each transmitter sends out an IR beam with a continuous stream of requests for a specific Sound or Show file.

When a receiver moves into the modulated beam of IR light transmitted from an **IR-Tx**, the **Sd-25** or **Sd-50** will use the received show/sound file number to request and play that Show or SoundFile.

If you need to trigger the vehicles' Sound/ShowFile as part of a larger stationary show, you can simply use an animation output from the stationary control system to apply power to the **IR-Tx** at the instant where you want the trigger to happen. -G

Updated IR receiver

Our **IR-Rx** plugs onto a standard Rj-12 cable to provide an IR input to a **Bs-Brain4**, **Sd-50**, or other compatible controller. As long as we were making a new IR receiver for the **Sd10/25**, we updated the **IR-Rx** to make it smaller and improve its immunity to interference from other light sources. -G



(Continued from from page 1)

digitals in any order. Each console can save and load separate presets. Each Mackie console features eight motorized sliders, full 'transport' controls, timecode display, and LCD 'scribble' pad for displaying figure and channel names. Up to three additional Mackie 'Sub-Consoles' can be used to assemble a 32 channel console. Existing Serial Console presets can be converted to Mackie presets. The Soft Console now supports up to six analog channels from a USB mouse or joystick.

- Art-Net DMX. This allows thousands of channels of data to be sent to your show via Ethernet. Future DMX-512 input/output, Smppte input, serial strings will be supported via the **Bs-Brain4**.
- For clients with existing hardware, one **MACS-USB** or one **MACS-ISA** can be used to support 256 channels of DMX-512 input/output. They can be set to start on any 256 channel boundary in the show, not just channel zero. This allows them to access and program any of the 16,384 channels. Your existing serial consoles (**Tog-02**, **Micro-Con**, **MACs-Con**, **Enc-Con**) can be attached through your **MACs-USB** or **MACs-ISA**, or through a **USB-RS232/422** to your PC.
- New v1.1 AutoDownload files. New AutoDownload files support:
 - Up to 2048 channels & up to eight sequencers (for **Bs-Brain4**). File size up to 1 trillion bytes.
 - Supports more trigger inputs & modes: Play sequentially or randomly from list.
 - Figure and output names are stored in the AutoDownload header.
 - Almost entire **Bs-Brain4** configuration is downloaded in the AutoDownload file. This includes triggers, strings, shows, etc.. Everything that you used to have to configure by hand.
 - Fully backwards compatible with v1.0 files, as long as the file has less than 256 channels. -G

Tip

How Big Does Your Sd Card Need to Be?

As of this writing, the largest SdHC flash cards are 32 GBytes. Using the typical iPod Mp3 calculation, this would hold up to 7,000 songs, or about 16 days of SoundFiles!

We have successfully tested current **Sd-10s** and **Sd-25s** with SdHC flash cards up to 16 GBytes.

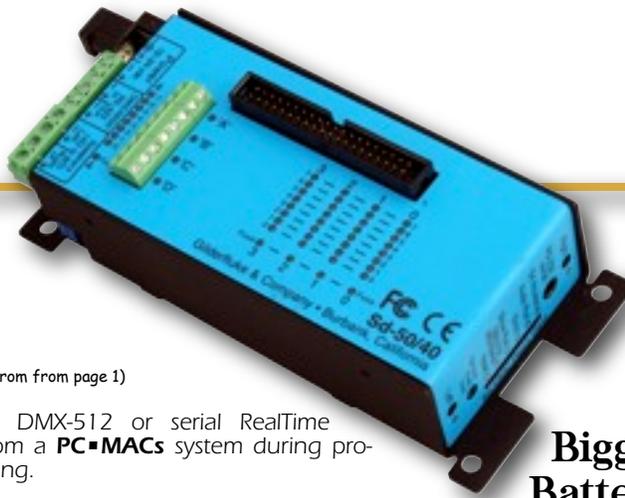
Most applications don't need that much space. Many are only a few seconds of sound. Think of a scream, explosion or other short sound effect. The smallest card you are likely to find these days will be at least one GByte. This will hold about half a day's worth of sound.

Sd flash cards smaller than 512 MBytes typically come formatted with FAT (aka FAT16), although they can be reformatted with FAT32. Sd flash cards over 512 MBytes usually arrive formatted with FAT32.

Our **Sd-50s** currently require that all Sd flash cards are formatted FAT32.

Sd flash cards larger than four GBytes are in a new format called SdHC. The 'HC' stands for 'Hardly Compatible', as they will not work with anything more than a year or two old.

The SdHC cards have standards for speed ratings (i.e.: 'Class4', 'Class6', etc.) Earlier Sd flash cards always left you guessing about how fast 'x' times faster really meant. They were always faster than something, but it was never clear what. -G



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- Accepts DMX-512 or serial RealTime data from a **PC-MACs** system during programming.
- Operates as a 'Smart' Brick or 'Dumb' Brick. Changes with the flick of a switch
- Networkable! In 'Dumb' Brick mode, four optoisolated inputs can be used to start, stop, pause, continue, or access shows. Can be controlled and Configured through the networked RS-422 port.
- Analog outputs are compatible with most Variable Frequency Drives (VFDs) and intelligent motor controllers, **EFB-QUAD**, **PID-QUAD**, **AMP-Bipolar**, etc.. -G

Custom modes for Sd-10s and Sd-25s

The **Sd-25** has a dipswitch you can use to select from among of 32 different modes. The **Sd-10** allows the selection from among eight different modes.

Even with all these modes of operation, you may not find the one that does exactly what you need. If that is the case, we can add a special mode just for you.

If all you need is one of the **Sd-25s** existing modes to run on a **Sd-10**, this is fairly easy, as the code has already been written and tested. If your need is for something that is completely unique, this will usually take a couple of man-hours of time for us to implement it for you. -G

Serial Volume Control for Sd-10s and Sd-25s

The **Sd-10s** and **Sd-25s** have an extremely simple serial command interface that can be used with the optional **Sd-RS232** or **Sd-RS422** (**Sd-RS422** is **Sd-25** only) options.

You send it the letter 'p', along with the number of the SoundFile you wish to play, and the **Sd-10** or **Sd-25** will play it.

The **Sd-50s** has a lot more commands, including a volume control. We have now added this command to the **Sd-10s** and **Sd-25s**.

Just send a <Control>V followed by the new volume level (00h to FFh). This will adjust the 'full' volume level to the value that was entered. The 'half' mute will automatically scale to this new 'full' level. -G

Bigger Batteries on Sd-50s'

Our best-selling does-everything Show Controller, lighting controller, audio player, amplifier, real time clock, etc. is designed for 24 hour a day, 365 day a year operation. The small battery that keeps the real time clock running when it is powered down is simply there to bridge short, temporary blackouts. It seems some seasonal users have been leaving their **Sd-50s** unplugged for extended periods.

Starting with the hardware revision 1.2d, we will be adding not just larger batteries, but also two of them to the **Sd-50/8** and **Sd-50/40** Audio players and Show Controllers.

This should increase the shelf life for the batteries by many times the current capacity. -G

Florida GilderOffices Temporarily Closed

With the economic downturn, we have temporarily mothballed our Florida office. We will be reopening the office soon.

In the mean time, all calls are forwarded to California. We have added more techs in California, and consultants in Florida who can assist you with any questions, installation, or system integration. -G

Sd-10 Studio-Transmitter Link (STL) Backup

While most commercial radio stations have their antennas located atop a mountain in some remote locale, the studios where the programs originate are generally located in the cities which they serve.

Linking the studio and transmitters are microwave Studio-Transmitter Links, commonly called 'STLs' in broadcasters' jargon.

Although generally reliable, as with anything electronic, things can go wrong. Then the station commits the cardinal sin of all broadcasting:



"Dead Air"!

Some radio stations are using our little **Sd-10s** as their normal audio source. Others are using them as backups for their Studio-Transmitter links. Although the normal **Sd-10s** will work in this application, we now have an enhanced '**Sd-10/STL**' version that has a few small tweaks to make it work just that much better in this application.

The **Sd-10** is loaded with a Sd flash card with whatever programming the station wishes to broadcast. Its job is to simply wait at the base of the antenna in the transmitter room until something goes wrong. Upon sensing the Loss-Of-Signal message from the STL, it immediately starts playing the SoundFiles from its Sd flash card. At the user's option, it can be set to play each SoundFile in turn or at random.

When the STL comes back on line, the **Sd-10** reshuffles the SoundFiles and waits for the next STL failure. -G

Using Sd-10 as a Smpte Time Code Generator

A major Southern California theme park recently needed a Smpte time code generator to run a show located along a main street in the park.

They couldn't use an off-the-shelf Smpte generator because parades regularly pass by this shows' location, and they didn't want the two shows competing with each other.

They could signal when a parade was approaching, but they needed a Smpte generator that could respond to this by finishing the current show, and only then switching the time-code output to run a 'quieter show'. After the parade had passed by, at the end of the quiet show, it would then need to switch back to the normal show's timecode.

Their solution was to use a **Sd-10** with audio files recorded with the Smpte time codes they needed. The **Sd-10** normally loops the regular show's timecode. When it gets a message that a parade is coming, it finishes the current show and then loops the 'quiet' show's timecode until the parade has passed. -G



The Class-D amplifiers found on our **Sd-25s**, **Amp-50s** and **Sd-50s** are extremely powerful, while being exceptionally power stingy. The **Sd-25s** and **Amp-50s** have an output equivalent to a 200 to 250 Watt linear amplifier, and the **Sd-50s** have twice that!

A Class-D amplifier's power draw is directly related to the level of the sound the amplifier is pushing. When there is no sound, the Class-D amplifiers draw almost no current. Even at full power output, the **Amp-50s** and **Sd-25s** draw only 50 Watts from their power supplies. This works out to about two amps at 24 VDC.

About 90% of the power you put into one of our Class-D amplifiers is delivered to the speakers. By comparison, a typical 200 Watt linear amp will waste about 80% of its power draw in its heatsink, whether it is pushing any sound or not. At best, only about 20% of the 200 Watts (about 40 Watts) goes to the speakers.

These features make the **Sd-25s** and **Amp-50s** particularly well suited to battery and solar powered applications.

What voltage?: All GilderGear will run on either 12 or 24 volts, which are your two common choices for solar/battery systems. The Class-



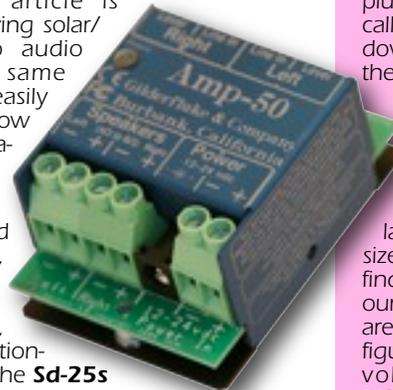
App. Note: Solar Power System for Amp-50s & Sd-25s

There are places where you need to plug something in, but there just isn't an electrical outlet.

This could be for an ADA-compliant informational sign in the middle of a national park, an effect somewhere in a corn maze, or even on-board a horse-drawn hay ride. Anywhere the costs of laying in a long run of electrical cable is impossible or exceeds a few hundred dollars, it is now less expensive to go solar.

Building a solar-powered attraction also has an intrinsic cachet. It is something you can advertise as a feature of your attraction.

Although this article is mainly about applying solar/battery power to audio equipment, the same techniques can easily be applied to Show Control and Anima-



Background

A Walk Through NonVolatile Memories

First came Eproms. They were the first solid state chips that could permanently store animation or audio data. The largest available when we started held a whopping 2048 frames of data. You had to physically remove Eproms from the controller, Erase them by exposing them to a high intensity UV light in a special 'Eprom Eraser', plug them into a device called an 'Eprom Burner' to download a program to them, then reinstall them in your controller.

Next came EEPROMs. They could be programmed and erased in place, but always lagged behind Eproms in size and speed. You will find EEPROMs on most of our products, where they are used to store the configuration and other non-volatile data. The **Br-MiniBrick4s** and **Br-MiniBrick8s** use EEPROMs to store the show data.

Finally came Flash memory. Flash can also be erased and programmed in place, but has the capacity and speed that far exceeds the largest Eproms.

Flash has been made in a plethora of removable card formats. That's why the USB flash card readers will often claim compatibility with 45+ card formats.

Sd flash cards are the first of the many flash card formats that we have designed into our products that hasn't immediately gone extinct! -G



Tip

GilderGear with PLCs

Almost every one of our products has a serial port. It's easy to connect this to your PLC's serial port. You can then call up animation shows and sound files, adjust audio playback volume, and more from within your ladder program. Check out the manual for your GilderGear or call us to find out more.

Your PLC can easily select and play SoundFiles on an **Sd-25** or **Sd-10**. Connect the A and B inputs on your **Sd-10/25** to two outputs on the PLC, and set the audio player's DIP switches to put it into Mode C (**Sd-25**) or Mode 1 (**Sd-10**). Your PLC can select any audio file by pulsing the A and B inputs. For the first sound file, pulse A once. For the second, pulse A once, then B once. For the third, pulse A once, then B twice, and so on. In this way, your PLC can access any sound file on your **Sd-10** or **Sd-25** with just two outputs.

Gilderfluke & Co. is the leading maker of Show Control Systems, including the smallest animation controllers available. But did you know that some of the biggest animatronic figures in the world are powered by Gilderfluke Show Control Systems paired with PLCs? The two work hand-in-hand to operate big show actions and potentially-dangerous special effects safely while still giving you the flexibility and easy programming of Gilderfluke & Co.'s Animation Controllers. -G

D amplifiers can't achieve their full potential at 12 volts, but may be loud enough for your application. If you are going to be blasting the sound, you can assume you will need to use a 24 volt solar/battery system.

To test whether you need 12 or 24 vdc, try running a mock-up with the **Sd-25** or **Amp-50** and the speakers you will be using on 12 and then 24 vdc. If it is loud enough at 12 vdc, then use 12 vdc. Otherwise, switch to 24 vdc.

A 12 volt solar/battery system uses:

- 1) 12 volt Solar cell
- 1) 12 volt rechargeable battery
- 1) 12 volt Solar charge regulator

For a 24 volt system, you will need:

- 2) 12 volt Solar cells (or one 24 volt cell)
- 2) 12 volt rechargeable batteries
- 1) 24 volt Solar charge regulator (or two 12 volt units)

The solar charge regulators are usually designed with the lower cost lead acid (car batteries) or sealed lead acid ('Gel Cell') batteries in mind. Make sure the batteries you have chosen are compatible with your charge regulator.

How Much Current?: That depends. As described above, the current draw on a **Sd-25** or **Amp-50** when delivering its maximum output to the speakers is 50 Watts, or two amps at 24 volts. The chances of continuously drawing this much are slim and none unless you are playing Death Metal at full volume.

First, if your SoundFile pokes along at a whisper, with occasional loud peaks, the average current draw will be a fraction of the 50 Watts it draws at peak. The current draw follows exactly the modulation in the SoundFiles.

Second, these amplifiers are POWERFUL. You are unlikely to be running them at full volume. The volume knobs will be turned down well below the maximum '11' setting in most applications.

Third, if not making any sound 90% of the time, and blasting Death Metal at full volume during the remaining 10% of the time, the average current draw will be only 5 Watts. You can use a much smaller solar cell and battery.

Fourth, if the system needs to run at night or on cloudy days, you will need to increase the size of the battery to bridge these times. Batteries are rated in 'Amp/Hours' This is the number of amps that the battery can deliver for an hour. A new '10 Amp/Hour' battery will deliver one

amp for ten hours, or ten amps for one hour.

Fifth, if the system is triggered by the visitors, there may be days where it is only rarely triggered, and other days when it is run almost continuously. If it is triggered by a motion detector, the local fauna may trigger it as much as the two legged visitors. You need to size the power system for the 'worst case' days.

Sixth, you will need to add a 'fudge factor' to allow for deterioration of the battery and solar cells over time. As any battery ages, its capacity diminishes. Dust and dirt on the surface of the solar cells will diminish their capacity. If installed in a dusty location where nature doesn't give it a regular rain washing, you may need to spec a slightly larger solar cell to compensate.

You can put a current meter on a mock-up audio system and see what it draws while playing typical sound files at the volumes you expect to use. Most meters will give you an instantaneous measurement of the current draw. What you really need is an average over time. A better way to determine the long term current draw is to run a mock-up system from a battery pack and see how long it runs. If you use a new, fully charged ten Amp/Hour battery and it runs for twenty hours, you will know the average current draw is about 1/2 of an amp, and you can size the system accordingly.

Putting it all together: The wiring for a solar power system is straight forward. Most small solar cells and charge regulators have standardized on two pin SAE connectors. These will make it difficult to wire incorrectly. Extension cords with SAE connectors are available, or you can get the connectors at your local car parts store.

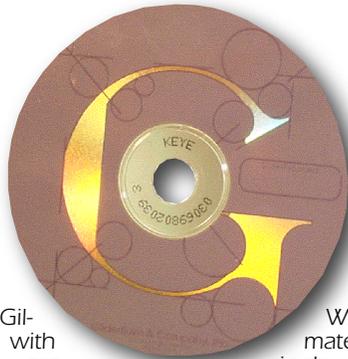
1. The solar cells are connected to the charge controller. If you have two solar cells for a 24 volt system, then you need to wire the two solar cells in series.
2. The batteries are attached to the charge controller. Two 12 volt batteries will need to be wired in series for a 24 volt system.
3. Attach the **Sd-25** or **Amp-50** to the wires labeled 'load' on the charge controller. You will probably want to put a fuse and/or switch in this line so you can turn the power off when you need to.
4. Wire any trigger switches, motion detectors and speakers to the **Sd-25** or **Amp-50**, just as you would normally.

Solar Panels and charge controllers are available from Harbor Freight Tools: <http://www.harborfreight.com/>, McMaster-Carr: <http://www.mcmaster.com/>, and a number of other suppliers. Just search for 'Solar' on their websites to find the parts you need. -G



Custom Product GilderGear Labeling

If you are using a larger quantity of GilderGear, you can order the equipment with your own custom labeling. In this way, you can 'brand' the GilderGear as your own. -G



Greatest Hits On CD

We distribute all 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 included with most orders, or are available for a nominal charge. -G

GilderSwag Available for Ordering

As everyone knows, there is no human being more fashionable on this planet than your typical Gilderfluke & Co. Employee.

Now you too can dress just like one!

GilderShirts, GilderChocolates, GilderMouse-Pads and other great GilderSwag are now available from our online web store. -G



Classes Anyone?

The spacious quarters at Gilderfluke Towers has a permanent display area where we offer classes in GilderTechnology. We know that our stuff is pretty easy to learn to operate, but if you would like formal classes, they can be scheduled.

If you are interested in training on GilderGear, please contact Carolyn Rowley (carolyn@gilderfluke.com) in our California GilderOffice. -G

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. Usually, these have been incorporated into products produced by our clients.

If you are interested in custom designed equipment, please contact Doug Mobley (doug@gilderfluke.com). -G

Field Installation & Service

Gilderfluke technicians are available for installations worldwide. You will need to pay all the usual transportation expenses (business class or better airfare, hotel, food, and per diem) in addition to the fee for the technician.

If you are interested in field support and installation of Gilderfluke & Co. equipment, contact Carolyn Rowley (carolyn@gilderfluke.com) in our California GilderOffice. -G

Our Two Most Asked Questions

In the more than twenty-five years we have been in business, the second most commonly asked question is where our company's name came from.

Eli Gilderfluke was an 'inventor' who's illustrations appeared in railroading trade magazines in the 19th Century. A precursor of Rube Goldberg in the 20th Century, 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. To the right is 'Gilderfluke's Perfected Locomotive' from the [December 1897 issue of Railway and Locomotive Engineering Magazine](#).

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



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.

2009 will be only the second time IAAPA will be held anywhere West of the Rockies (Dallas is more South of the Rockies). The only other time was when IAAPA was held in Los Angeles, which was the best attended IAAPA ever. From now on, IAAPA is scheduled to alternate between Las Vegas and Orlando.

November 17-20, 2009

International Association of Amusement Parks & Attractions ([IAAPA](#)), Las Vegas Convention Center, Las Vegas, Nevada

March 25-28, 2010

[National Haunt & Attraction Show](#), America's Center, Saint Louis, Missouri

June 9-11, 2010

[InfoComm](#) International Las Vegas Convention Center, Las Vegas, Nevada

November 16-19, 2010

International Association of Amusement Parks & Attractions ([IAAPA](#)), Orange County Convention Center, Orlando, Florida

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 Digital Audio Playback 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 four or five systems 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 **Sd-10**, **Sd-25** and **Sd-50** Industrial-Strength Mp3 players. These store audio on standard MMC/SD Flash cards for any installation where you need a sound to play reliably and with zero maintenance; forever. Our systems are modular. Systems with two to thousands of outputs are can be made with our repeaters.

Sd-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 them into a total Audio and Show Control playback solution. The GPS option allows shows and sounds to be scheduled, accurate to .001 second. -G

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- Big Things Here for **PC=MACs**
- **Br-ANA** with Sd Flash Cards
- Bigger **Pb-DMX** show memory
- Free GilderChocolate
- GilderGear Comparison Chart
- **BrightSign** & **DVX-F150** Video Players
- IR Receiver for **Sd-10** and **Sd-25**
- Updated **IR-Rx**
- Using **IR-Tx** and **IR-Rx**
- How Big Does a Sd Card Need to Be?
- Custom Modes For **Sd-10/25**
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- Florida GilderOffice Temporarily Closed
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- Using GilderGear with PLCs
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