

GilderNewsletter

Views and News from the World of Gilderfluke & Co.

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Serving the Entertainment Industry for 30+ Years!

New Beta Pc•MACs Available for Download

Our latest Pc•MACs Show Programming Software is now in public beta. This means you too can download the latest build of Pc•MACs to use for programming all your GilderGear.

Pc•MACs has hundreds of new features. The only reason it is still in Beta, is that we are still adding more features to it. (We just can't help ourselves!)

Best of all, the new Pc•MACs software is **free!**

RealTime features of Pc•MACs no longer need a MACs-License for shows with less than sixteen channels (16 eight bit resolution analogs and/or 128 digital outputs, or equivalent). This covers the majority of small shows and installations.

For shows larger than sixteen channels, RealTime programming requires a MACs-License. Even if you bought it years ago, your existing MACs-License dongle will now enable importing and exporting data, attaching consoles and USB-to-DMX adapters, and programming shows with up to 16,000+ channels.

Here are a small subset of the new features. There are not nearly enough pages in the GilderNewsletter to cover them all!

- **16,384 channels of data:** (131,072 digital channels)
- **Windows XP thru Windows 8 Compatible:** Pc•MACs can also be used on a Macintosh by running a PC as a virtual machine inside Parallels or similar software.
- **AutoUpdater:** Pc•MACs can check once a week to see if we have uploaded an even newer version. With changes happening regularly to Pc•MACs, we suggest you keep this feature enabled!

Continued on p.2: New Pc•MACs

4K Resolution Video Players from Brightsign

We now have the new v-4K players. As you may have surmised from the name, these three players deliver full 60 fps UHD at resolutions up to 3840x2160.



With a base price of only \$600, these players compete nicely with the \$20,000 players from other vendors.

Features of the v-4K Players include:

- Decodes two simultaneous native 4K UHD resolution (3840x2160@60p) videos plus a H.264 1080p (1920x1080@60p) video. MVC Codec for single player frame packed, top-over-bottom or side-by-side 3-D.
- UHD H.265 encoded video is stored on removable SdHC, SdXC or internal µSdHC or µSdXC flash cards
- HDMI v2.0 video output supports resolutions up to 3840x2160x24/25/30/50/60p
- HDMI v2.0 video input supports resolutions up to 3840x2160x24/25/30/50/60p (v-4K1142 only)
- Supports screen layouts with multiple zones of HTML5, video windows, still images and text tickers

Continued on p.4: v-4K Video Players

New Feature! Apple Remote and Sd-25 w/DMX

The Sd-25 w/DMX is the latest revision of our best selling Sd-25. It adds what were options (RS-232 serial port and IR port), as well as DMX input for triggering and level control.

We had announced these new units in last year's GilderNewsletter.

Since then we added a new feature that may be of use and interest to you:

If not set to receive DMX-512 or the IR from an IR-Tx, the new Sd-25s w/DMX can be controlled using a standard \$20 Apple IR remote control.

The Apple remotes can be used to select and play the SoundFiles and to adjust the volume level. When you set the volume level, it is stored in non-volatile memory. If the unit is powered down, it will come back to the volume level you set when it is powered back up. This is particularly useful when the Sd-25s are mounted in a hard-to-reach location. -G



Which UHD/HD Player is Right for You?

Now with nine different models of video players to choose from, selecting the right player for your application has gotten complicated. The players in each column use the same chassis, and have different selections of input and output connectors on each model.

v-4K Ultra High Definition	v-Xd 1080p High Definition	v-Hd 1080p High Definition
v-4K1142 w/Video In, GPIOs, 2x USB 3.0, RS-232, Ethernet, S/PDIF, IR	v-Xd1230 w/Video in, GPIOs, 2x USB, Ethernet, RS-232, S/PDIF, IR	v-Hd1020 w/GPIOs, USB, RS-232, Ethernet
v-4K1042 w/GPIOs, 1x USB 3.0, RS-232, Ethernet, S/PDIF, IR	v-Xd1030 w/GPIOs, 2x USB, RS-232, Ethernet, S/PDIF, IR	v-Hd220 w/Ethernet
v-4K242 w/GPIOs, Ethernet	v-Xd230 w/Ethernet	v-Hd120 w/GPIOs



To make a digital 'chase', start with one digital.

<Shift>+<Control>+Right Click and drag the digital across several lines.

When you release the Right Click, the digitals are drawn across all the lines.



New Pc•MACs: Continued from p.1

■ **Automatic Backups:** Pc•MACs creates a backup file from the previous show and site file. You can save between zero and 99 backups. Use the File Menu's "Restore from Backup" to open a previously saved backup file directly, or just change the file extension back to ".SHO".

■ **Drag-n-Drop** on any of the two column 'mover' dialogs ("Move to OffLine Window", "Disable Outputs", "DMX-512 Console", etc.), you can simply drag figures, console presets, analog or digital outputs between the left "inactive" column and the right "active" column.

■ **DMX-512 Input & Output:** (Requires MACs-License) Pc•MACs supports up to ten [USB-DMX512 Adapters](#). Each sends out 512 channels of DMX-512, and you can add additional [adapters](#) to support more DMX-512 universes.

■ **High Speed Serial Output:** (Requires MACs-License and a Br-Brain4 with firmware v4.15+) You can set the baud rate at which Pc•MACs talks to the Br-Brain4 on the Preferences/Hardware Setup/Serial port Interface dialog. Just setting it here will instantly change the baud rate to match on the attached Br-Brain4. You can see this as it happens if you set the LCD on the front of the Br-Brain4 to display the primary serial port's baud rate.

■ **DMX-512 Output Through a Br-Brain4** (Requires MACs-License and a Br-Brain4 with firmware v4.15+) The Br-Brain4 has four DMX-512 universe outputs. These can send out up to 2048 channels. Since the Br-Brain4 is normally used as the heart of the permanent playback system, you can wire in the Br-Brain4 as it will be needed in your final show. You send DMX-512, timecode and serial strings through the Br-Brain4 dur-

ing programming, save your AutoDownload file to an Sd card, shove the Sd card into the Br-Brain4, and your final show is ready to run. Because you already used these connections while programming your shows, you know the wiring and hardware is all working.

■ What's Coming Next....

- Automatically configure Sd-50s, draw in the triggers, and move all the necessary files into

a folder you can simply drag-n-drop onto an Sd flash card for the Sd-50.

- Use the timecode reader in a Br-Brain4 for locking Pc•MACs to Smppte timecode.
- Automatic chase pattern generator.
- Automatic IP download to GilderGear.
- Enhanced Macros
- and more.... - G

The Channels List

- The Channels List can now be sorted using FigureNames, DeviceNames (new!) or SequencerNames (also new!).

- You can freely change between zero and one-based addressing. This only changes the way the DMX-512 addresses are displayed, and not the underlying number used. There is also a preferences toggle to append the DMX-512 address at the front of output names (or not) wherever they are displayed.

- Folders can now be 'nested', which allows you to have multiple levels of folders.

- Analog and Digital Outputs can freely be Drag-n-Dropped between 'folders' (Figures, Devices, or Sequencers).

- "Devices" are the actual pieces of GilderGear and third party hardware (dimmers, LED lights, smog machines, etc.) that will be controlled by the system. Typically one of the pieces of GilderGear is used as the DMX-512 'master', and all the other hardware is attached to the 'master' through the DMX-512 network as 'slaves'.

- Devices are added when you add outputs to the Channels List using:

- "Add Device With Channels" is the preferred way to add outputs to a show. You can choose from the list of GilderGear, or the third-party output devices. This command simultaneously adds both the "Device", and the analog and digital outputs it uses. Using the metadata that this command provides, Pc•MACs is better able to configure and AutoDownload shows. Even the color of the outputs is set automatically, so the three analog channels for an RGB light fixture will always be red/green/blue on the OffLine Editing Window.

- "Add Device Without Channels" is a special

command which is used to upgrade shows created with older versions of Pc•MACs to support "Devices".

- "Add Multiple Devices" is a quick way to add more than one of the same device (with channels).

- You must have at least one piece of GilderGear added to the channels list so that Pc•MACs can perform an AutoDownload. Pc•MACs uses the information from the GilderGearList to know how many inputs, the memory capacity, and other information about the AutoDownload target device.

- "Sequencers" allow you to break up an installation to run multiple asynchronous timelines. This can be used for a ride-through attraction with independently triggered scenes, or to add Pop-Out shows to a single figure. Any show must use at least one sequencer, and this is automatically added to any show when it is created or brought in from an older version of Pc•MACs.

- As Analog and Digital outputs are added to a show, or when a show which was created in an older version of Pc•MACs is opened, the outputs are automatically added to the first "sequencer".

- Once you have created multiple sequencers, you can select which sequencer is "active" from the drop down on the main Control Window. You will find that only the analog and digital outputs that are assigned to the active sequencer can be displayed, recorded, played back or edited.

- You can temporarily revert the show to a 'flat' single sequencer operation at any time by selecting 'Flatten and Enable All' from the Control Window. You will be able to see, edit record and play back all the channels in the Channels List when this is selected.

The AutoDownload Dialog

- When the AutoDownload dialog is initially opened, it chooses the 'most capable' (largest DMX-512 capacity, largest memory capacity, etc.) GilderDevice as the likely target for the AutoDownload. You can select a different GilderDevice if needed.

- The list of shows to include in the AutoDownload file now allows multiple shows to be selected for editing.

- If the range of channels, number of sequencers or size of the AutoDownload file is larger than the target device will support, Pc•MACs warns you about this.

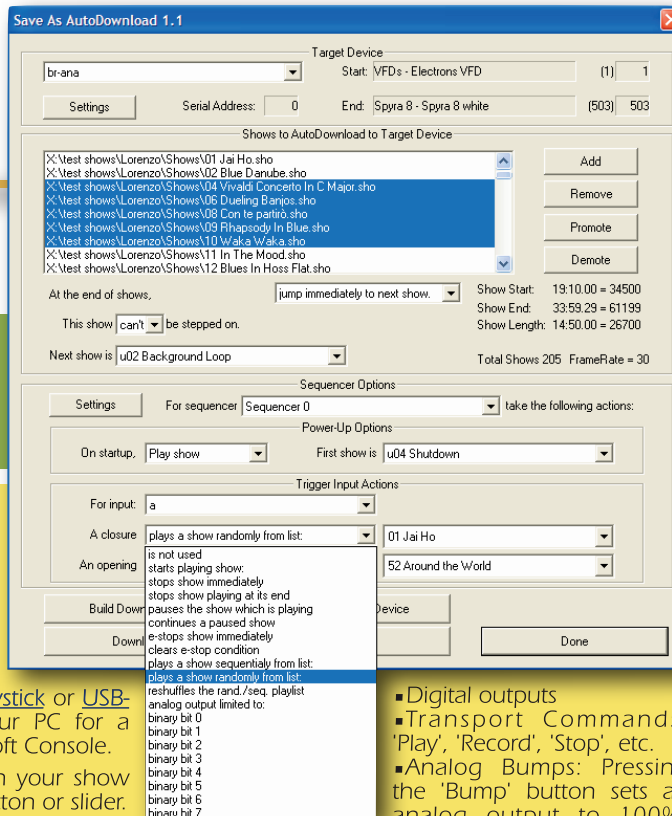
- Most GilderGear now has many more options available on the trigger inputs. These include scaling analog outputs, play-listing and randomizers.

- When an AutoDownload is consummated, Pc•MACs stores all the settings used in the AutoDownload for the currently selected

target device. When the AutoDownload dialog is reopened and the same target device is selected, Pc■MACs will reload the settings used the last time.

The Soft Console

- The Soft Console now supports up to eight analogs and thirty-two digital functions. You can program in RealTime on the Soft Console using only your mouse and keyboard.
- A USB-Slider Console, USB-MbJoystick or USB-AtoD can be plugged into your PC for a hardware console input to the Soft Console.
- Any analog or digital channel in your show can be freely assigned to any button or slider.
- The Soft Console's digital inputs can be assigned to:



- Digital outputs
- Transport Commands: 'Play', 'Record', 'Stop', etc.
- Analog Bumps: Pressing the 'Bump' button sets an analog output to 100%. When released, the analog value drops to the previous level.

OffLine Editing Window

- Multiple levels of 'Undo' (<Control>+Z)
- Markers for the show start (green), stop (red), punch-in (blue) and punch-out (orange) times. Left click on the lines where they cross the 'time' bar to move them as needed.
- The names of analog and digital outputs on the OffLine Window are shown in the left side of the Window. As outputs are selected, the names are highlighted. You can change the selected outputs by:
 - Left clicking on them
 - <shift>+left Click to select a contiguous range of outputs.
 - <control>+left click to select discontinuous range of outputs.
 - Using the up/down arrow keys
- You can right click in the left margin of the OffLine Window to sort the channels by address, name, invert the current sort, or select and deselect channels.
- If you need the digital or analog channels arranged in any other order, you can simply Left Click on any of the Analog's or Digital's names, and drag them up or down into the order you need. With the channels sorted, it is easy to create chases across multiple analog and digital outputs.
- OffLine Editing Window presets. These save and restore whatever channels are on the OffLine Window, as well as the sort order for all the channels.
- New 'RubberBanding' editing options:
 - <Shift>+Right Clicking on a digital now allows you to move the selected digital to another output, and not just left/right to shift it in time.
 - <Control>+Right Clicking on a digital copies the selected digital in time, or to another output.
- <Control>+<Shift>+Right Clicking on a digital copies the selected digital to another output, and fills in all the intervening digital channels. If you drag across several digital channels, as well as moving forward or backwards in time, this creates an instant 'staircase chase' across the digital outputs.
- Combo Stretch/Compress: Select a stretch of time. Move the cursor to the time bar, and Right+Click on the right edge of the selected area to stretch/compress the selected area. Select in the time bar in the middle of the selected area, Right+Click and move left/right. Depending on which way you move the cursor, the data one side of the cursor will be compressed while the other side is stretched.
- Right+Click to add Drag-n-Drop markers for:
 - Audio Triggers: Just drop a markers where you want SoundFiles to start playing. If you have more than one SoundFile, you can select which are played. When you AutoDownload your shows, Pc■MACs will 'draw' in the triggers, create a folder that just needs to be copied onto an Sd card to configure and move all the SoundFiles to the player.
 - Video Triggers: Just drop a marker where you want a VideoFile to start playing. When you AutoDownload your shows, Pc■MACs will 'draw' in the triggers, create a folder that just needs to be copied onto an Sd card to configure and move all the needed VideoFiles to the video player.
 - String Triggers: Serial strings are sent out through the Br-Brain4's secondary serial port as the shows are played. When you AutoDownload, the strings are included in the file that goes on the Br-Brain4, and will be sent out exactly as when you were programming in Pc■MACs.
 - Text Markers: Reminders, Notes or Scripting that you can embed in the OffLine Editing Window's timeline.

Tip Opening Old Shows with New Pc■MACs

The new version Pc■MACs can open any .sho file that the v.199 Pc■MACs can.

The AutoDownload command will be unavailable until you tell the new Pc■MACs what GilderGear you are AutoDownloading to:

1. Display your Channels List (F7)
2. From the Channels menu, select 'Add Device without Channels....'. This is a special command just for updating older shows. Pick your AutoDownload target device from the list of GilderGear (Sd-50/xx, Br-miniBrick, Br-ANA, Pb-DMX/32, etc.). You only need to add the one piece of GilderGear that you will be sending the shows to.
3. Save your show before you invoke 'Save as AutoDownload...'
4. You can now AutoDownload your shows.
5. Pc■MACs has picked a target 'Device'. If needed, select a different target at the top of the AutoDownload dialog.
6. You will see that Pc■MACs now knows the number and names of inputs, memory capacity, what options are available on each input, etc. for your chosen AutoDownload target device.

If you open a 'new' Pc■MACs show with an earlier version (v.199 or before), it will strip out the metadata (devices, presets, sequencers, etc.) that are used by the new version of Pc■MACs. You will need to put these back in after a 'new' show has been opened with an older version of Pc■MACs. - G

DMX Triggers

DMX-512 Triggered Video Players

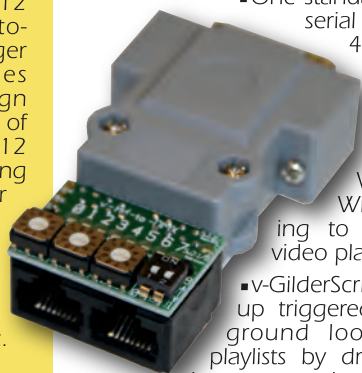
You can now order any of our high definition video players with all the accessories needed to trigger them from any DMX-512 network. This includes all three of the new UHD 4K players.

DMX-512 is the network used throughout the world to control all theatrical lighting. Every theater from the local high school, to the largest house on Broadway, control their lighting using DMX-512 networks. The v-HD-to-DMX is used to trigger audio and video files stored on a BrightSign player from any source of DMX-512. The DMX-512 can come from an existing light board or another piece of GilderGear. Since it is triggered by the same DMX-512 as everything else in the theater, everything will always be in perfect sync.

Anyone who can run a light board can use the v-HD-to-DMX, GilderScript and a BrightSign player to add audio and video playback to a presentation. The GilderScript allows you to use most standard media files on a BrightSign player without any manual 'scripting'. Just drop your media files into appropriately named folders on a standard Sd (or SdHC or SdXC) flash memory card and shove it into the BrightSign player. If you send a value of '123' to the DMX-512 address of the v-HD-to-DMX, any file(s) you have placed in a folder named 'playlist123' will be played. It's that Easy! -G

v-4K Video Players: Continued from p.1

- 10/100 Ethernet Network enabled for:
 - Live Text, Twitter feeds, networked databases and RSS content feeds
 - Remote content updates using either Free, Enterprise or hosted network management solutions
 - Synchronization support through Ethernet (or optional WiFi) for creating video wall displays of any size
 - Scheduling and day-parting using internal RealTime clock or networked time server
- Eight GPIOs can be used to select and play videos (see the optional v-Hd-to-1/4J6 and v-Hd-to-DMX)
- Video codecs: MPEG-1 & 2, H.264, H.265, WMV in MPEG-2, AVCHD/BDVA, ASF, MP4, MOV containers
- Audio output: HDMI, S/PDIF (v-4K1142, v-4K1042), 1/8" Optical (v-4K1142, v-4K1042) and Stereo jacks for: MP2, MP3, AAC, and WAV (AC3 pass thru)



- One standard nine pin RS-232 serial port (v-4K1142, v-4K1042).

- One (v-4K1042) or two (v-4K1142) USB 3.0 ports.

- Optional v-Xd-to-WiFi module adds WiFi wireless networking to any v-Xd or v-4K video player.

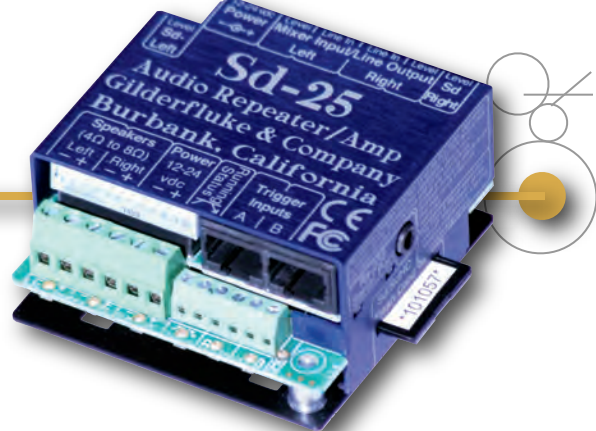
- v-GilderScript allows you to set up triggered video files, background looping videos and playlists by dropping media files into appropriately named folders.

Eliminates all script writing for most applications.

- v-HD-to-1/4J6 optoisolated GPIO to 1/4-J6 adapter eases wiring to GilderGear or buttons and switches
- v-HD-to-DMX isolated GPIO to DMX-512 adapter allows triggering video from any source of DMX-512
- Compact size for easy out of sight mounting: 168mm x 69mm x 149mm / 6.6" x 2.7" x 5.9" (WxHxD) -G

Made in the USA

All equipment which is designed and built by Gilderfluke & Co. is manufactured in the United States of America. -G



Smaller than a Post-It Note

There are many 'universal' standards in the world. One of the less recognized ones are Post-It notes. A standard Post-It note is 76mm square, anywhere in the world.

The footprint for mounting an Sd-25 is only 70 mm square. If there's room for a Post it note, there is room to mount an Sd-25.

A while back a major zoo had a new Asian elephant exhibit almost completed. The Technical Director for a museum across the parking lot from the zoo saw that the ambient audio system was going to use outdoor rated 19" racks in the landscaping, with audio players, amplifiers and air conditioners. Having used GilderGear in her museum, she suggested that the zoo's TD contact Gilderfluke & Co. before proceeding.

Although the construction contracts had already been let, they canceled them when they reviewed the GilderGear.

With sound system now the size of a Post-It note, they didn't need the 19" racks to hold them. Instead they put the Sd-25s in outdoor rated 4x4 J-boxes. The entire hardware package probably cost less than one of the raw 19" racks.

The zoo has since used GilderGear on many subsequent installations. -G

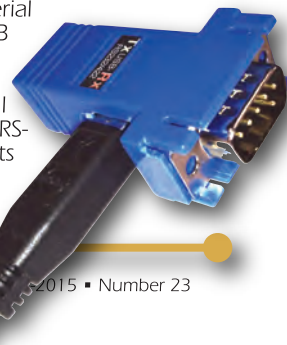
Show Control System White Papers

You can download White Papers on control systems for different sized shows and applications from the application note page of our web site, Gilderfluke.com. The first of these are:

- [Fountain Control](#)
- [Motion Base Controls](#) -G

New Look for Venerable USB-to-Rs232/422

Since PCs no longer have serial ports on them, you need a USB to serial adapter to talk to the configuration ports on GilderGear. This new serial adapter has both RS-232 and RS-422 serial ports, and supports the new high speed communications with a Br-Brain4. -G





App. Note: Build a Budget Backyard Fountain

One of our most popular 'App. Notes' are the instructions to build a fountain inside of a briefcase. Download it here: [Fountain in a Briefcase](#)

It turns out that not that many people need a fountain in a briefcase, but many folks do have a backyard pond or pool that they'd like to have some musical fun with.

Most large permanent fountains are made using industrial grade pumps, manifolds, filters and valves. For a 'backyard' scale fountain, you can get away with a lot less. By using individual fractional horsepower pumps on each jet, you can make a serviceable fountain show using just parts from your local hardware store.

If your pond is small and has a fairly level bottom, you could drain it and build the fountain in place. For most applications, you'll want to make a framework to hold all the fountain parts so that you can build it on dry land, throw it in the pond to run, and pull it out when needed. If you are going to put your fountain into a swimming pool or larger pond, you may add some pontoons so that the whole fountain assembly floats just below the surface of the water.

The framework is typically made from plastic pipe. This makes a reasonably sturdy, yet lightweight and rustproof frame. If you are making a 'floater,' you may choose to use larger diameter pipes and fill them with expanding foam. The frame can then do double duty, providing buoyancy as well.

Most fountains use a large pump and solenoid valves to control each jet (think of it as a big version of our briefcase fountain). In this case, we will be using a small submersible pump for each jet (or set of jets). Instead of a solenoid valve, the water will be turned on and off by switching the power to the pump using a solid state relay. The turn on/off time for the water is not as sharp as with a solenoid valve, but it is certainly fast enough to be usable.

The outlet of the pump is typically extended to the water surface with a piece of rigid PVC pipe. You can use a flexible hose if needed to feed a moving nozzle like those at the Bellagio.

You have many choices for nozzles. The largest variety are in the plumbing aisle disguised as hose barbs. These are available in all sizes in



either brass or plastic. You don't want to use a nozzle that has a larger inside bore than the pump outlet. If you want to get fancy, you can use a 'fan' spray head, Rainbird or oscillating sprinkler. You can re-bend the arms on a rotary sprinkler to make it shoot more upwards than outwards. Ring sprinklers can be combined with a vertical jet or a spinner through its center.

It's also not difficult to make your own 'custom' nozzles by drilling holes in a PVC pipes and caps. Just let your imagination go wild!

If you want a somewhat laminar flow of water, just fill the 'riser' pipe from the pump with as many small diameter plastic drinking straws as you can. This will act as a 'flow straightener' to smooth out the turbulence from the water passing through the pump impeller.

Because the pumps are simply being switched on and off, you don't have too much control over the height of the fountain jets. Inline ball valves, which are built-in to many hose nozzles and fittings, can be used to adjust how high each jet shoots. If you do want to make a water feature which shoots to several heights, you can use two (or more) pumps on one jet.

Two pumps will give you 'off' and three jet heights. Ideally you would choose two different sized pumps for this. A smaller pump and a larger pump which is rated for about twice the smaller pump's flow. The output of both pumps would be combined into a single pipe and then run to the nozzle. Conveniently, the hardware store has 'Y's for garden hoses that work well for this. They even have built-in ball valves that can be used to adjust the heights of the jets. When the smaller pump is turned on solo, the water will shoot to the first level. With the larger pump on solo, the water will shoot to the middle level. With both pumps turned on, the water will shoot to its highest level.

For any fountain, tree leaves are your enemy. You especially want to keep anything large enough to clog up a small nozzle out of the system. Although most submersible pumps come with some sort of strainer or filter, it will probably do little more than preventing you from sucking in a carp. If your pond already has a filter, you may want to manifold its output to feed your pumps. If there is no existing pond filter, you'll want to supplement the pumps' filters with a larger one. You can buy ready-made filters and strainers, or make you own.

Tip Using The Big Timecode Generator in the Sky

'Timecode' is used to lock systems together so that they all run in sync.

In the entertainment industry, the most common type of timecode is SMPTE. Created by the Society of Motion Picture & Television Engineers in the 1960s. It can be recorded on tape, film or any medium to sync equipment.

In the early 1970s, the Global positioning System (GPS) was developed by the US Department of Defense. Not only does it provide an accurate position on the earth, it provides the most accurate 'UTC' time available. UTC is the primary time standard by which the world regulates all clocks and time.

The Br-Brain4, Sd-50/8 and Sd-50/40 can all use a GPS antenna, and the UTC time as 'Timecode'.

With no physical connection to each other, all GilderGear that is locked to GPS is automatically synchronized with every other piece of GPS-locked GilderGear on the planet.

The parade floats that are rolling through theme parks in North America are synchronized within 1/1000 second with each other and the music from the stationary speakers, which is sync'd with the clock tower in Africa, which are sync'd with the fountains on the Caspian Sea in Turkmenistan, which is sync'd with the announcements at a Florida Oceanarium, etc., etc. -G

Tip

Random Shows

If you AutoDownload your shows using new version of Pc•MACs, you will see that there are many more options available for the trigger inputs.

The one we've been having the most fun with is the 'Randomizer'. With this command, you can select a range of shows which will be played when a trigger arrives. What makes it fun, is you won't know which show will be played.

In walk-thru (like haunts) or ride-thru attractions, you can randomize the shows, so that no one will be able to predict what is going to happen in the next scene.

In fountains, you can use a simple timer to set when shows play, but which show is played is picked completely at random.

On one fountain, we have 50 'musical' shows and about 200 'background' shows that play in between. These average just a few seconds in length. At the end of each show, a digital output is set to turn on. That output is wired back into the trigger input that has been set to play the 200 background shows at random. The end of one show picks the 'next' show to play at random.

Even though the total amount of show time is only about 30 minutes, the odds of seeing the same pattern of background shows twice is infinitesimal.

If you want to see just how infinitesimal it is, multiply 200x199x198 and so on until you reach 'x1'. Your odds of winning the lottery are far better than guessing the order of these background shows! - G

It is usually easier to clean one big filter instead of a bunch of small ones. You may want to use a single large filter, and pipe the filtered water to the inputs of all your pumps.

Most musical fountains are really light shows shining on water. They may look OK during the daytime, but look spectacular at night.

In professionally installed fountains you will generally find a Red/Green/Blue DMX-controlled light for each jet.

Although you can use these, you probably don't need to go that far. In most cases, just a few fixtures, each illuminating several jets should suffice. You can buy ready-made RGB fixtures with or without built-in DMX-512 controls from many sources (do not use 'color changing' fixtures!). If you are on a budget, you may want to get incandescent fixtures from your local hardware store, then replace the light bulbs with individual high output red, green and blue LEDs. Just by switching these on and off through relays, you will get a choice of seven colors of light (Red, Green, Blue, Turquoise, Yellow, Purple and White(ish)).

If you are not satisfied with just seven colors of lights, you can use DMX-512 controlled dimmers instead of relays. This will give you 16 million potential colors.

The control system to use with your fountain is the Pb-DMX family. These include a Pb-DMX/0 show controller mounted to a 8, 16, 24 or 32 channel Grayhill solid state relay board. Each relay is conservatively rated for 3.5 amps of current, which is plenty for most fractional horsepower submersible pumps. Pb-DMXs can be networked together if you need even more outputs. For lights, you can control them through the spare relays. If using DMX-512 dimmers or fixtures, attach them to the Pb-DMX's DMX-512 output.

The power cords that come with most submersible pumps tend to be fairly long. The pump manufacturers want you to plug them in well away from the water, since electricity and water don't mix very well. If possible, you should run the pumps' power cords out of the pond and to the control system, which should be mounted in a watertight enclosure and powered through Ground Fault Interrupters (GFI's).

If you make your control box with a water resistant outlet for each relay, it makes a convenient way to connect and disconnect all your

lights and pumps.

Just like the big fountaineers, you will use our Pc•MACs software for programming your shows. You can have foreground shows with music, and background shows that play in between.

If your show occupies less than sixteen DMX-512 addresses (equivalent to 128 Pb-DMX/32 relay outputs), then you can use the Pc•MACs software for free. Unless you are making quite a large show or going hog-wild on RGB DMX-512 controlled lighting, you probably will be staying below the level where the MACs-License is needed.

If you are only running your fountain occasionally, you may just run it off your computer when needed. In this case you will use the audio output from your computer for the fountain.

You can easily set up your fountain to run standalone (no computer needed). Since the computer won't be there to provide the sound, you will need to add an Sd-25 w/DMX to the control box for the audio playback and amplification. The Sd-25's amplifier is big. You can hook up a pair of good-sized speakers right to it. Unless your backyard is huge, you shouldn't need any additional amplification.

You can AutoDownload your shows to the Pb-DMX, and it can be started with a pushbutton or a simple timer, or tied into an AMX or similar whole-house control system using its serial port. - G

Backyard Fountain Control System



Machao Orphanage

Along with her work with people with Sickle Cell Disease, Dr. Carolyn Rowley, our VP and CFO, has been the primary U.S. organizer and fundraiser for the

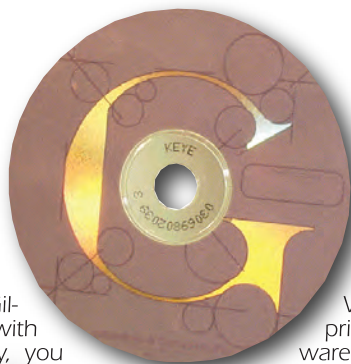
Machao Orphanage in Makueni, Kenya.

Projects for this year included a solar powered irrigation pump for the greenhouse and repainting the dormitories. Each child also received new bedding and a brand new pair of shoes.

If you would like to help support the facility, or any of the kids directly with school tuition or other aid, more information can be found at www.machaoorphanage.org - 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, GilderMousePads 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 GilderGear. 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

Gilderfluke Show Plans

We are scheduled to exhibit at the following trade shows in the upcoming year. 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 18-21, 2014

Booth #1852

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

March 19-22, 2015

Booth #714

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

June 17-19, 2014

Booth #771

[InfoComm](#) International, Orange County Convention Center, Orlando, Florida

November 18-21, 2014

Booth #t.b.d.

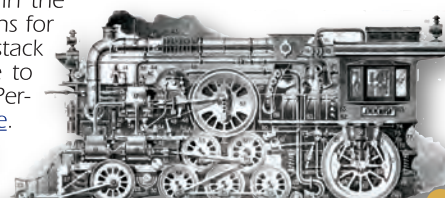
International Association of Amusement Parks & Attractions ([IAAPA](#)), Orange County Convention Center, Orlando, Florida

Our Two Most Asked Questions

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

Eli Gilderfluke was an 'inventor' whose 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. The verb "to Gilderfluke" something eventually came to mean improvised repairs (i.e.: "Jury-Rigging") on a piece of machinery. 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



• You can follow us on:



Who Are We?

For over 30 years Gilderfluke & Company has been building 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 technologi-

cal 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 a thousandth of a second. -G

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- Opening Old Shows with New Pc•MACs

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