GT 050Q™

Fixed-Mount Tabletop Hard Drive with Quad Interface: FireWire 800, FireWire 400, USB 2.0 Hi-speed, and eSATA

Quick Guide

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Dec 7, 2006

Quick Guide

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About This Document

This document is a brief introduction to Glyph’s GT 050Q, a fixed-mount tabletop drive with FW400, FW800, USB 2.0 and eSATA connections.

Document Conventions

Notes

Notes alert you to important information. They are indented and preceded by the word **Note** in bold type.

Cautions

Cautions alert the user to actions or situations that can result in damage to users or data. Cautions are accompanied by a triangle icon, as in the example below.

Caution:

If the container is damaged, file a report with the carrier or dealer immediately.

Contacting Glyph

Please use the following contact information to contact Glyph and its distributors.

Glyph USA offers phone support Monday through Friday, 9:00 am to 6:00 pm Eastern Time.

Note: ***DO NOT ship any return goods to the mailing addresses below unless you have a valid RMA number. All goods will be refused delivery unless a valid RMA number is displayed on the outside of the package***.

United States of America

Mailing Address	Phone/Fax	Email and Web Site
Glyph Technologies 227 Cherry St. Ithaca, NY 14850 USA	Phone: +1 607-275-0345 Fax: +1 607-275-9464	General information: info@glyphtech.com Sales enquiries: sales@glyphtech.com Technical support: tech@glyphtech.com www.glyphtech.com

Europe

Mailing Address	Phone/Fax	Email and Web Site
Steyler Str. 121 D - 41334 Nettetal Germany	Phone: 0049 (0) 21 57 / 12 76 23 Fax : 0049 (0) 21 57 / 12 83 12	Sales enquires: sales.europe@glyphtech.com Technical support: support.europe@glyphtech.com www.glyphtech.com

Contents of This Guide

About the GT 050Q

The GT 050Q is a fixed-mount tabletop drive with a quad interface, utilizing FW400, FW800, USB 2.0 and eSATA connections. Depending on which port(s) your computer has, you can connect the GT 050Q in a number of ways. You're probably already familiar with FireWire 400 and USB, so we'll tell you a little about FireWire 800 and eSATA.

FireWire 800 Facts

- FireWire 800 supports speeds up to 800 Mb/sec, twice as fast as FireWire 400.
- If your computer does not have built-in FireWire 800, you'll need a PCI card to achieve a true FireWire 800 connection.

- Most 800 ports are Bi-Lingual, which means they speak both FireWire 400 and FireWire 800.
- If you connect a 400 device to an 800 device, you will be running at 400 speed maximum.
- FireWire is forward-compatible and back-compatible, but the bus always runs at the speed of the slowest link.
- Beta cables are used to connect 800 devices to 800 devices.
- Bi-Lingual cables are available to connect 400 devices to 800 devices.
- Bi-Lingual cables have a 9-pin Bi-Lingual connector at one end and a 4-pin or 6-pin FireWire 400 connector at the other end

eSATA Facts

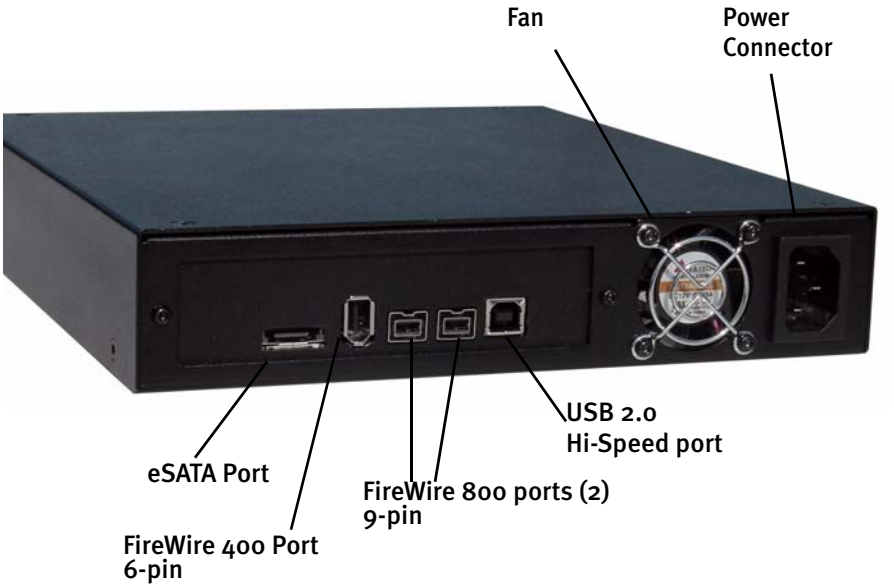
- eSATA is an external interface technology that grew from the internal SATA I interface.
- The GT 050Q's eSATA port supports speeds up to 1.5 Gb/sec (150 MB/sec), much faster than FireWire 400 or FireWire 800.
- Shielded eSATA cables up to 2 meters in length are available.
- eSATA cables are different than SATA I cables, they are shielded and cannot be used with internal SATA I connectors.
- eSATA uses a "point-to-point" connection, therefore each eSATA drive needs to be connected to its own eSATA port.
- Most computers do not have built-in eSATA, so you'll need a PCI card to connect your drive with eSATA.
- PCI cards are available with 2 or more ports to accommodate your drives.

Indicator Lights on Chassis

The power switch and drive activity LED are on the front of the GT 050Q. The power switch LED glows green when the GT 050Q is plugged in and switched on. The drive activity LED will flash when the drive is being accessed.

Back Panel Details

The illustration below identifies the ports and features on the back of the GT 050Q chassis.



Features

- Sound-absorbing metal with noise-damping construction
- AC power input filter
- Internal power supply
- Durable desktop enclosure
- Internal quiet ventilator fan
- Rack-mountable with optional rack ear kit

Requirements

Macintosh Computer

- With FireWire 400, FireWire 800, USB or eSATA port, or host bus adapter.
- FireWire 400 requires OS 8.6 or later; FireWire 800 requires OS 10.2.5 or later; USB 2.0 requires OS 10.1 or later; USB 1.1 requires OS 8.6 or later, eSATA requires OS 10.2.x or later.

Windows Computer

- With FireWire 400, FireWire 800, USB or eSATA port, or host bus adapter.
- FireWire 400 requires Windows ME/2000/XP; FireWire 800 requires Windows 2000/XP, USB 2.0 requires Windows ME/2000/XP; USB 1.1 requires Windows 98 SE or later, eSATA Windows XP.

Frequently Asked Questions

Q: Do I need any drivers to use the GT 050Q?

No drivers are required for Mac or PC. Your computer must have a FireWire, USB or eSATA port. You may need drivers when you install an eSATA card, please check the documentation that came with the card.

Q: How do I connect the GT 050Q to my eSATA equipped computer?

Use an eSATA cable (not included) between the eSATA port on your computer and the port on the drive. We strongly recommend you use high quality external SATA cables. Low quality cables do not offer the proper shielding and durability that high quality cables offer, and may allow data to be corrupted.

Q: How do I connect the GT 050Q to my USB equipped computer?

Use a USB cable (not included) between a USB 1.1 or 2.0 port on your computer. The cable needs to have an “A” connector at the computer end and a “B” connector at the drive end.

Q: I'm still running Mac OS 9 or Win/ME. Can I still use the GT 050Q?

Yes. You can connect use either the "S400" port or the USB port on the drive to your OS 9 or Win/ME computer.

Q: What's FireWire 800?

A high-speed version of IEEE-1394b FireWire. FireWire 800 uses the IEEE-1394b "Beta" protocol (data-transfer language) to improve performance and efficiency.

Q: What are the differences between FireWire 800 and FireWire 400?

Speed and Protocol. a) FireWire 800 has a max transfer rate of 800 Mb/sec (about 100 MB/sec peak). FireWire 400 has a max transfer rate of 400 Mb/sec (about 50 MB/sec peak). The higher bus speed helps with things like large file copies and RAID, where FireWire 400 bus speed can be a limiting factor. B) FireWire 800 uses IEEE-1394b "Beta" protocol; FireWire 400 uses IEEE-1394a "DS" protocol.

Q: What's Beta?

A FireWire protocol (data transfer language) defined in IEEE-1394b. It is much faster and more efficient than the "DS" protocol used in IEEE-1394a (FireWire 400). Beta is what permits the higher speed and performance of FireWire 800. The Beta protocol can only use the new 9-pin connectors.

Q: What's Bilingual mean?

"Bilingual" refers to a port that can use either the new "Beta" protocol or the old "DS" protocol. The FireWire 800 ports on the GT 050Q are Bilingual, meaning that they adjust their protocol to match whatever they're connected to. A Bilingual port connected to another FireWire 800 port will use the Beta protocol and run at FireWire 800 speed; but if it's connected to a FireWire 400 port, it will use the DS protocol, and therefore will be limited to S400 speed."Bilingual" also refers to a cable that connects a Bilingual S800 9-pin port to a FireWire 400 6-pin or 4-pin port, for backward-compatibility.

Q: Does Glyph sell Bilingual Cables?

Yes, you can purchase 9-pin to 6-pin and 9-pin to 4-pin cables from an authorized Glyph dealer.

Q: Does Glyph sell an 800 PCI card?

Yes. The Glyph FireWire 800 PCI Card is available from an authorized Glyph dealer. The card has three Bilingual ports, and is compatible with Mac and PC. It requires Mac OS 10.2.5 or later, or Windows 2000/XP. There are no drivers required for the card to work on the Mac or Windows operating systems.

Q: My Windows computer doesn't show the drive in My Computer. What's up?

The default format on the GT 050Q is for the Macintosh, and Windows doesn't recognize it. Once you have connected the GT 050Q to your Windows PC, you have to re-initialize it for use with Windows. For Windows XP and 2000, that's going to be NTFS format; for Win98/SE, that will be FAT32 format. Instructions for re-initializing your drive are in this manual.

Unpacking Your GT 050Q

Your Glyph GT 050Q and accessories are packaged in a sturdy shipping container. Please inspect the container for evidence of shipping damage and mishandling.

CAUTION:

If the container is damaged, file a report with the carrier or dealer immediately. Do not attempt to unpack and operate your GT 050Q until the carrier or dealer confirms the damage.

If the container is in good condition, proceed with unpacking the GT 050Q. Verify that all of the items described in the next section are present and in good condition.

Inspection

CAUTION:

If any of the items you expect to find in your container is missing or damaged, contact the dealer before proceeding any further.

In any case, do keep the shipping container and all packing materials in a safe place.

The GT 050Q package includes:

- GT 050Q Enclosure
- 2m FireWire 400 6-pin to 6-pin cable
- 2m FireWire 800 9-pin to 9-pin cable
- Power cable
- Feet for tabletop use
- Documentation CD with warranty card and this guide

Installing and Connecting the Hardware

1. Position the GT 050Q.

   Place the unit on a flat, level surface, or install the unit into a rack with the optional rack-mount kit.

CAUTION:

Speakers are magnetic devices; they can harm your data if they're too close to your hard drives or tape cartridges.

2. Connect the power cable (power off):

   Make sure that the power is off on all of your computer equipment and the GT 050Q.

Power switch with LED: AC power to chassis

Connect the power cable to the back of the GT 050Q. Plug the three-prong plug into an appropriate power receptacle, preferably with surge and spike protection.

3. Connect the 2-meter FireWire 400 or FireWire 800 cable.

   Plug one end of the FireWire cable into your computer's FireWire port, and the other into one of the FireWire ports on the GT 050Q (it doesn't matter which one).

4. Power up the GT 050Q.
5. Power up your computer.

If you are using a Macintosh computer the drive should mount automatically on your desktop.

Preparing Your Drive for Use: Mac OS 9 Users

Since your hard disk drive comes pre-formatted for Macintosh you don't need to format it on installation. If you should need to re-initialize the disk, you can use the Erase Disk command in the Mac operating system. This command will erase all the data on a volume and create a new file system. Erase disk will not allow you to re-partition a FireWire drive or create a different volume structure than what was previously there.

If you need more functionality than what is supplied by Mac OS 9, get a formatting and partitioning utility. Glyph recommends FWB's Hard Disk Toolkit or Charismac's Anubis utility. These will allow you to re-partition a disk and create multiple volumes, as well as format those volumes. Directions for using these utilities will be included with them.

Mac OS X users should use Disk Utility (supplied with the Mac OS X operating system) to format and partition drives.

Re-initializing your drive using Erase Disk (Mac OS 9 Users)

Your new drive should have automatically mounted on the desktop as a Glyph volume. We advise that you give it a recognizable name or number on your desktop.

Your drive is a single volume by default. To re-initialize your drive, use the following procedure.

CAUTION:

This procedure will destroy any data currently on the drive. Before formatting a drive, save any important data it contains.

1. Select the volume by clicking on it once in the Finder
2. Go to the Special menu and select Erase Disk...

   The Erase Disk dialog box opens to verify your decision to erase the disk.
3. In the Name field, enter the new name for the disk or leave the name as it is.
4. In the Format drop-down menu, choose an Extended volume.

   All GT Key drives are formatted at the factory as Extended volumes.
5. Click Erase.

   The disk is now erased and should mount on your desktop with the new volume information.

Preparing Your Drive for Use: Mac OS X Users

Since your Glyph hard disk drive comes pre-formatted for Macintosh you don't need to format it on installation. If your computer is running Mac OS X and you decide to reformat or partition your drive, use Disk Utility (supplied with the Mac OS X operating system).

Preparing Your Drive for Use: Windows Users

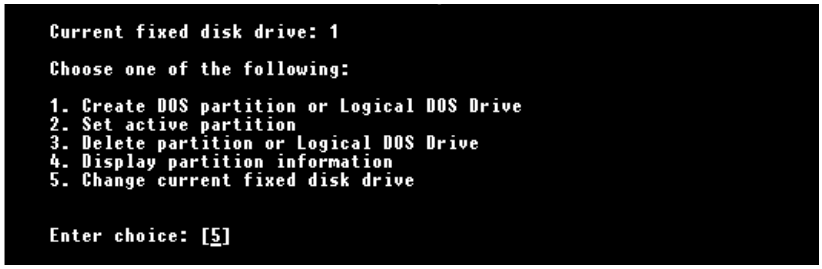
Because Glyph hard disk drives are formatted for Macintosh, Windows users must reformat their drives in order to use them.

Windows 98 SE

1. From your computer's task bar, go to **Start › Programs › MS-DOS Prompt**.
2. At the prompt, type **`fdisk`** and press Enter.

   You'll see a long message about disk support.
3. Enter **`Y`** (type **`Y`** and press Enter).

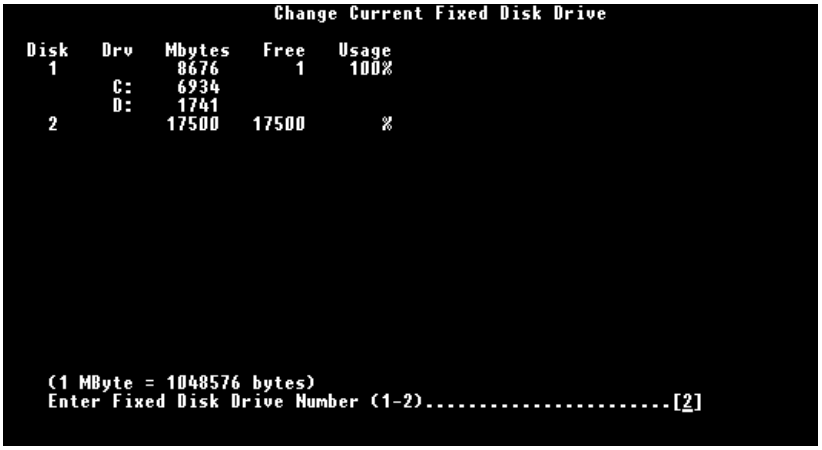
   You are invited to make a choice.



4. Enter 5 to change the current fixed disk drive.

MS-DOS displays the connected disk drives.

5. Enter the number of the disk that has no corresponding drive letter (in the example below, that's Drive 2).



You are invited to make a choice (same list as in Step 3).

6. Enter **1** to create a primary DOS partition.

Your computer verifies the drive's integrity, after which you are asked to choose whether you want to use all the space available.

7. Enter **Y** to opt for using the maximum available space.

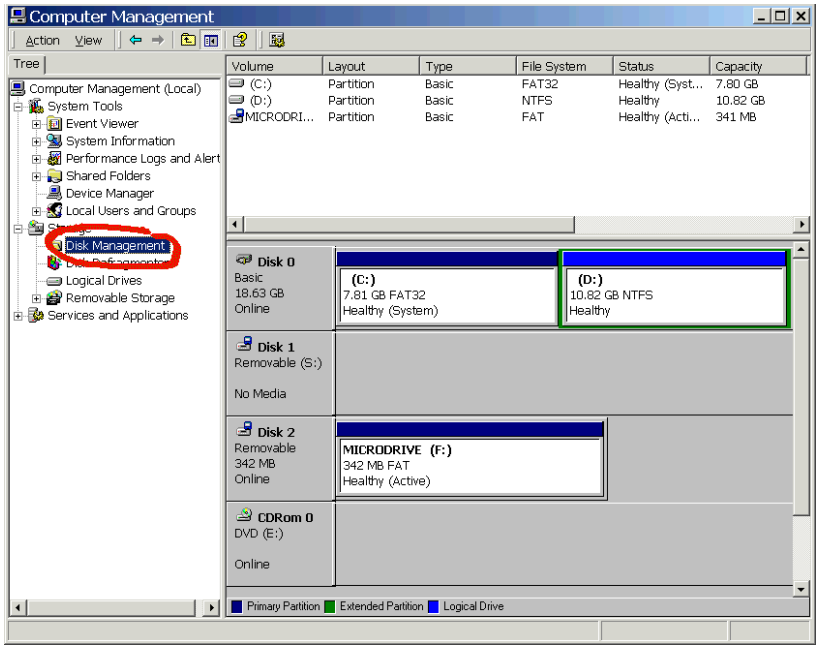
Your computer again verifies the drive's integrity.

8. When the drive's integrity has been verified, press ESC (Escape) three times to exit **`fdisk`**.
9. At the prompt, type **`exit`**.
10. Restart your computer.

Your new drive is now ready to use.

Windows 2000

1. Right-click **My Computer** and click **Manage**.
2. In the **Computer Management** window, click **Disk Management**.



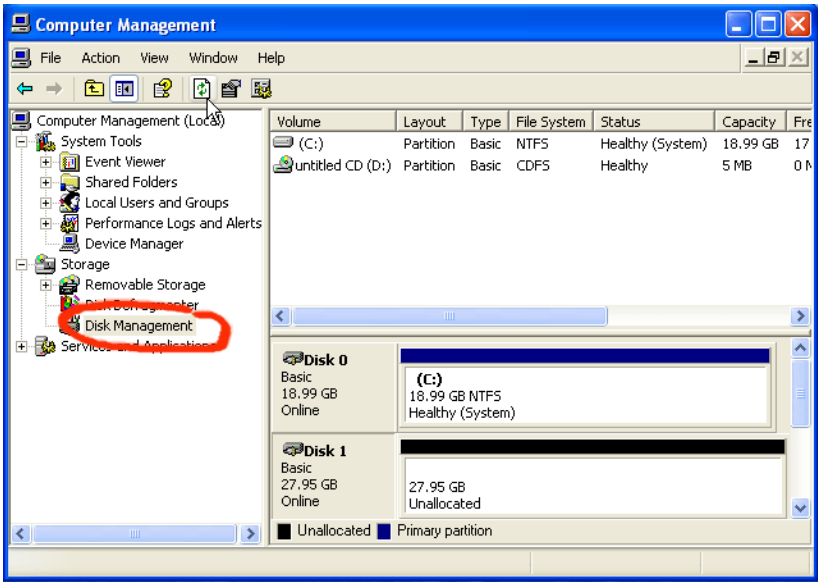
   The **Write Signature** wizard pops up.
3. Use the wizard to write a signature to the new drive.

4. Use the instructions that came with your operating system to continue formatting the drive. We suggest doing a Quick Format.

Formatting will take a few minutes, after which your drive will be ready to use.

Windows XP

1. Open **Control Panel** and click **Administrative Tools**.
2. Click **Computer Management**.
3. Click **Disk Management**.



The **Write Signature** wizard pops up.

4. Use the wizard to write a signature to the new drive.
5. Use the instructions that came with your operating system to continue formatting your drive. We suggest doing a Quick Format.

Care and Maintenance of the GT 050Q

CAUTION:

To properly operate and store your GT 050Q, make sure you observe the rules for temperature and humidity specified on page 23.

Power

Current

- Use only 100-240 V AC.
- Avoid plugging into an outlet used by high-current equipment like copiers or shredders.

Power and FireWire Cables

- Don't crush cables or place heavy items on them. If the cable insulation appears worn or broken, don't use the cable.
- Always unplug a cable by holding the plug. Never pull the cable itself, as it may damage the plug.
- If you are not planning to use your drives for a while, unplug the power cable from the outlet.

Environmental Conditions

Shock and Vibration

Don't subject the unit to excessive vibration. When shipping, remove any GT Key cartridges from the unit.

CAUTION:

If you intend to ship your GT 050Q, make sure it does not contain any drive cartridges. If you want to ship a GT Key cartridge with the GT 050Q, use the GT Key packaging designed for that purpose.

Dust, Heat, Humidity

Don't leave the GT 050Q in a location subject to excessive dust, direct sunlight, sudden changes in temperature (the resulting condensation can cause damage), or high humidity or temperature.

CAUTION:

If the GT 050Q is turned on with condensation inside, the drive or the GT 050Q may be damaged. After a sudden change in temperature wait at least one hour before turning on the GT 050Q.

Ventilation

The GT 050Q is equipped with a quiet fan for ventilation. Install the unit where it will have free air circulation around the case, and don't cover it while it's running.

Troubleshooting

If you are having difficulties or need assistance getting started, Glyph Technical Support will be glad to assist you. Contact addresses and numbers are on page 3 of this guide.

Before contacting Glyph please review the table below.

Symptom	Diagnosis	Treatment
Errors when reading from or writing to drive in Pro Tools.	Your Pro Tools DAE setting may be wrong.	Check DAE setting in Pro Tools.
	No obvious reason?	Run Norton Speed Disk.
Mac OS 9: Glyph FireWire drive does not mount on the Desktop.	The cables may not be connected.	Connect cables.
	The Mac FireWire extensions may not be enabled.	Enable FireWire extensions: FireWire Enabler and FireWire Support.
Mac OS 9 or X: Glyph FireWire drive is visible on the FireWire bus, but not on the Desktop.	The drive's directory structure may be damaged.	Use a disk repair utility such as Alsoft Disk Warrior or Norton Disk Doctor to repair the directory.
Mac OS 9 or X: When I unplug the drive from the FireWire bus an error message appears on the screen.	You may be unplugging the drive without dismounting the volume first.	Always drag the volume(s) to the trash on the Mac before unplugging the drive or turning off the drive's power.

GT 050Q Specifications

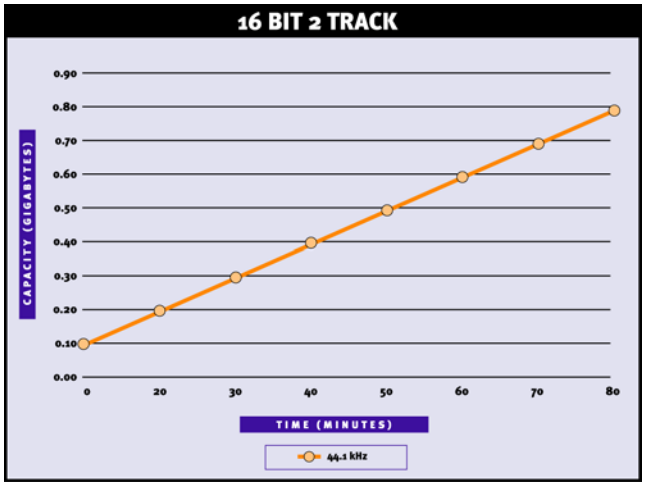
Form configuration		Tabletop enclosure.
Construction		Sound-absorbing metal around the drive, heat-dissipating aluminum enclosure, stainless steel faceplate.
Interface connectivity IEEE 1394 (FireWire)		Oxford 924 bridging chip
Power supply		Universal 100-240V AC 50/60Hz
Temperature	**Operating**	5°C to 55°C (41°F to 131°F)
	Non-operating	-40° C to 65°C (-40°F to 149°F)
Humidity	**Operating**	30% to 80% (assuming no condensation)
	Non-operating	10% to 90%
Weight		2 kg (4.3 lbs)
Physical dimensions (H x W x D)		1.7” x 8.6” x 9.5”
Warranty		3 years, includes overnight advance replacement warranty in 1st year

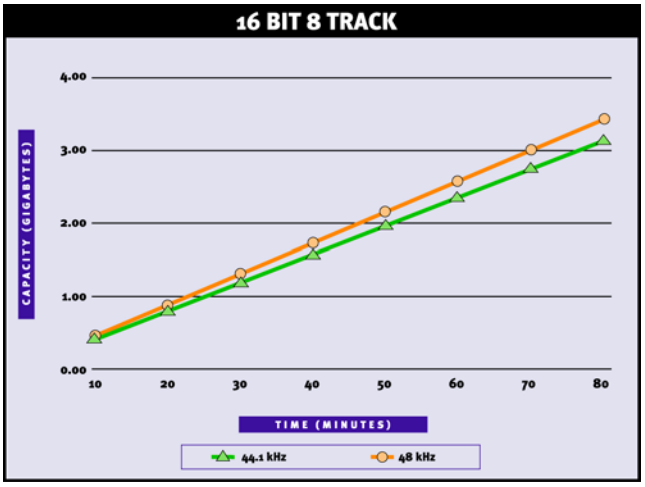
Audio Storage Guide

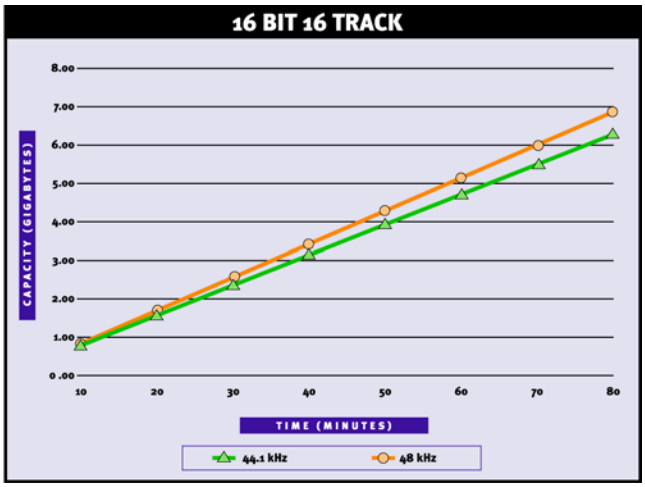
Be careful not to underestimate your needs. For maximum performance you should use a drive at least 30% larger than your estimated need. This gives you the room you need for operating overhead and extra files generated during mixing and editing.

Note: The following charts illustrate the capacities required for specific bit depths, sample rates and track counts. The ability to achieve higher track counts depends on your DAW.

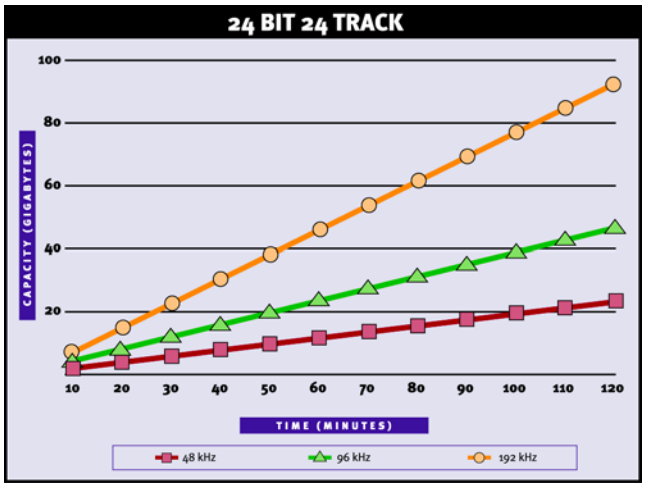
16 Bit Audio Storage Guide

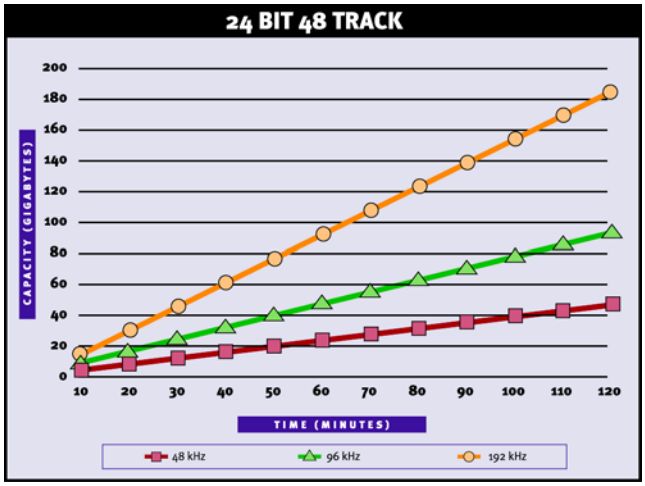


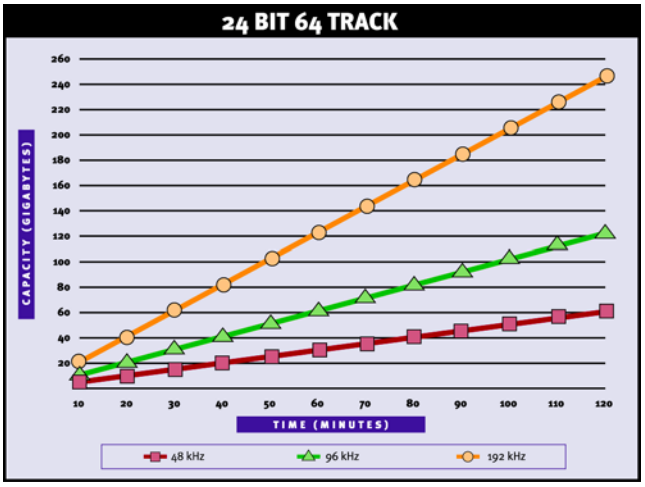

16 BIT 8 TRACK
CAPACITY (GIGABYTES)
4.00
3.00
2.00
1.00
0.00
10
20
30
40
50
60
70
80
TIME (MINUTES)
44.1 kHz
48 kHz

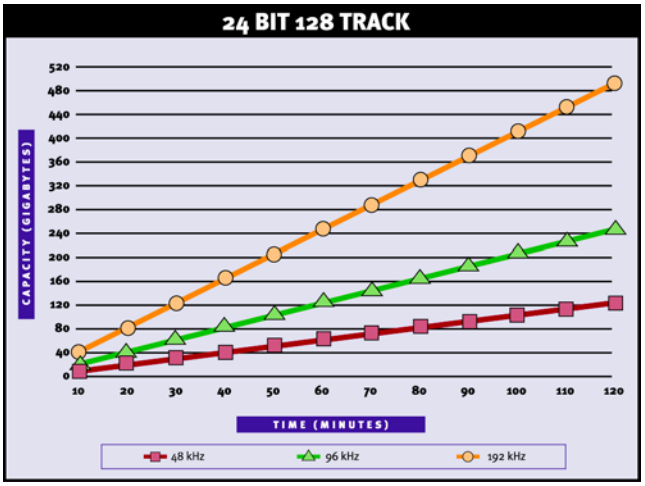

16 BIT 16 TRACK
CAPACITY (GIGABYTES)
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
10
20
30
40
50
60
70
80
TIME (MINUTES)
44.1 kHz
48 kHz

24 bit Audio Storage Guide






24 BIT 64 TRACK
CAPACITY (GIGABYTES)
260
240
220
200
180
160
140
120
100
80
60
40
20
10 20 30 40 50 60 70 80 90 100 110 120
TIME (MINUTES)
48 kHz
96 kHz
192 kHz


24 BIT 128 TRACK
CAPACITY (GIGABYTES)
520
480
440
400
360
320
280
240
200
160
120
80
40
0
10 20 30 40 50 60 70 80 90 100 110 120
TIME (MINUTES)
48 kHz
96 kHz
192 kHz

Glyph's GT Series Family Members

The GT Series is a cross-functional line of FireWire-based storage subsystems designed for mobility and easy expansion:

GT Key - A hot-swappable FireWire Drive

GT 050 - A Fixed-Mount FireWire Tabletop Drive

GT 051 - A Tabletop One-bay enclosure for GT Key drives

GT 103 - A One-space Thee-bay enclosure for GT Key drives

GT 060BR - A FireWire 800 Hardware RAID 0 Tabletop Drive

GT 205- A Two-space Five-bay enclosure

GT 050Q - A Tabletop Drive with FireWire 400, 800, USB and eSATA

About FireWire 400

FireWire is an implementation of the IEEE 1394 serial bus standard. It not only supports automatic configuration ("plug and play") and hot-swapping of devices, it's fast, and best of all it's reliable for audio/video as well as for computer peripherals. FireWire supports peripherals in a tree-like structure, as opposed to SCSI's linear structure. It allows peer-to-peer device communication—e.g. between a scanner and a printer—to take place, without using system memory or the CPU. With FireWire you don't have to worry about IDs or device termination; you can hook up to 63 devices to the same bus, with cable lengths of up to 4.5 meters (14 feet) including internal cabling, allowed between devices. Its cable is not only more convenient than SCSI's but can also carry power. This allows low-consumption devices to operate without a separate power cord, by using power supplied by other devices on the bus.

Glyph's Integrity FireWire Hot-Swap

The GT Series incorporates Glyph's own advanced FireWire technology called Integrity™. Inspired by the limitations of existing hybrid ATA-to-FireWire hot-swap products, Glyph engineers resolved the data integrity problems that arise from breaking at the ATA interface by incorporating unique enhancements to existing FireWire standards. As a result, the GT Key drive cartridge contains the ATA-to-FireWire bridging technology in the cartridge itself. When removing a hard drive from the receiver, the drive and its bridge remain together to support hard drive hot-swapping in the proper way—using circuits and protocols that are intended for hot-swap applications. The GT Series sets new standards as Glyph's Integrity™ technology surpasses today's other hot-swappable storage.

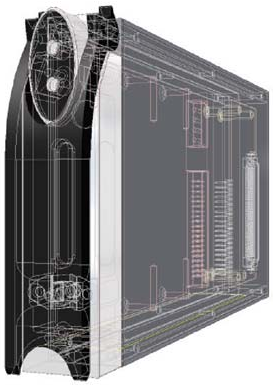
About the GT Key

The GT Key is at the heart of the GT Series. Fully hot-swappable using Glyph's proprietary Integrity™ FireWire interface, you can easily shuttle content to other GT Series enclosures with the 7,200 RPM GT Key. Utilizing a high-performance hard drive and Glyph's tri-laminate sound-damping technology, a GT Key is not only fast, but it's quiet too.

Integrity™ is an advanced FireWire hot-swap interface that provides greater reliability than existing hybrid to ATA-to-FireWire products. This offers true hard drive hot-swap technology, ensuring data integrity and consistency: removing a hot-swap drive from a Glyph FireWire system interrupts the data signal at the FireWire bus, not on the ATA bus as with other hot-swap systems.

CAUTION:

When transporting an individual GT Key cartridge, place it in plastic carrying case that it came in. This will help ensure the safety of the sensitive electronics exposed at the back of the cartridge.



GT Series Noise Control

SIGNAL NOISE

Components in GT Series enclosures are of the highest quality possible. These include:

- Heavy-gauge internal power cabling to carry current with minimal loss
- Bridge circuit boards designed to provide extra functions and top performance
- High-quality data cables to maintain signal integrity at high data rates

We use Teflon ribbon cables in our GT Series FireWire solutions because Teflon is the best insulator for minimizing cross-talk and maintaining high-frequency signal integrity. Good insulation maintains signal quality. Maintaining signal quality ensures maximum data transfer rates.

Acoustic Noise

GT Series enclosures and the GT Key incorporate sound-damping metal to support quiet recording by virtually eliminating noise caused by the vibrations of hard drives and fans.

This material is a constrained-layer composite—a laminate formed of two layers of metal sandwiching a viscoelastic polymer core. Vibration felt by the metal layers is dampened by the softer center layer: the deformation of the core facilitates the absorption of vibrational energy. The combination of quiet metal and secure fastening with sturdy steel mounting hardware helps to ensure a still, quiet environment for your recording sessions.

Power

Glyph uses efficient, high-quality power supplies, selected specifically for the demands of production environments.

Our power supplies have a large amount of headroom, so your Glyph system will function, for brief periods of time, with AC lines significantly below specified limits.

Glyph FireWire devices, even when they're not turned on, will pass signal and bus power through to downstream FireWire devices.

Glyph's FireWire solutions are 100% compliant with FireWire specifications for reliable operation using FireWire's repeater functionality.