

# Disk Recorder/Reproducer Model 84



## Features/Benefits

- ▲ IRIG Time Code A, B, G
- ▲ Serial NRZ-L data and clock
- ▲ Variable data rates
  - TTL – up to 32 Mbits/sec
  - ECL – up to 150 Mbits/sec
- ▲ High-speed Ultra-wide or Ultra-160 SCSI port
- ▲ Channel for voice annotation or auxiliary data
- ▲ 72 GBytes to 9 TBytes of RAID storage
- ▲ Archives to standard computer peripherals
- ▲ Uses Windows NT™ File System (NTFS)
- ▲ Touch screen front-panel control

# Disk Recorder/Reproducer Model 84

## Overview

The Model 84 is a disk-based recorder that records, stores, archives and transfers serial and auxiliary data such as voice and IRIG time code. The recorder is designed to capture and manage large amounts of single stream digital PCM data in real time. It records up to 560 GBytes to an internal RAID or up to 9 TBytes with external RAID. This data can be recorded from 1 kbit/sec to 150 Mbits/sec. Data can be transferred to industry-standard archival devices, to another user over a network or replayed and reconstructed to the original form. Control and monitoring of the Model 84 is by a front panel touch screen, by keyboard and mouse or remotely using an RS-232 port.

## Product Highlights

**Compliance** – IRIG 106, Chapter 10 pending.

**Flexibility** – The Model 84 Disk Recorder is functionally equivalent to a tape recorder such as the Sypris Model 64.

Its front-panel touch screen display can be used with or without a keyboard and mouse. This saves rack space and simplifies control of all system elements.

**High Capacity** – The disk recorder capacity is currently set at a minimum of 72 GBytes RAID, formatting the data as Windows NT™ file system (NTFS) files. Transferring a data file is as simple as dragging and dropping it on a desktop icon representing a front-panel drive or a network drive.

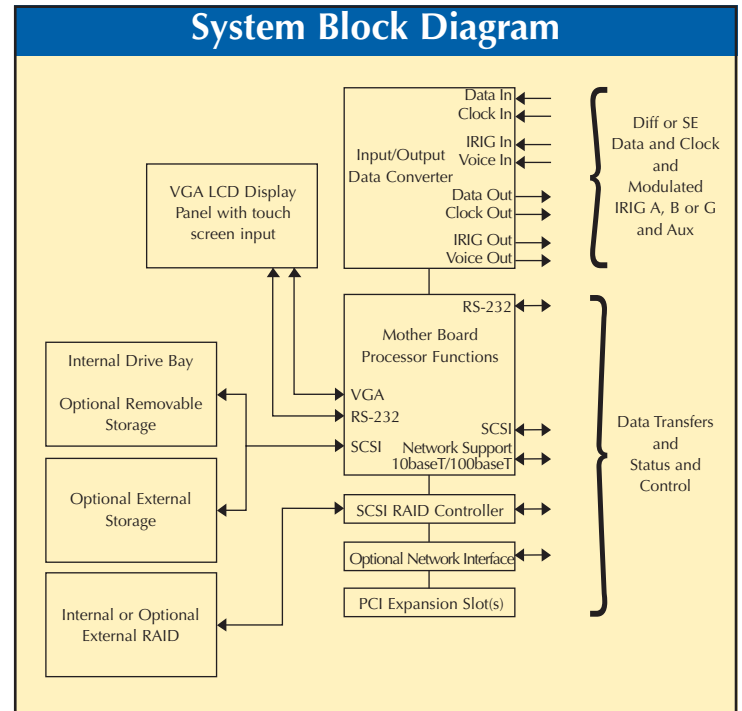
**Compact Design** – The Model 84 Disk Recorder fits most tabletop and rack mount configurations. Circuit boards are easily replaced for efficient servicing and maintenance.

**Cost Efficient** – The Model 84 Disk Recorder is a cost efficient, adaptable product that can be used to record, store and archive a PCM stream of digital instrumentation data.

**Ease of Networking** – Uses Windows NT™ File System (NTFS) networking is supported, on 10baseT/100baseT Ethernet with TCP/IP, FTP, etc.

**Flexible Storage Options** – Archival removable-media drives such as DLT, CD, DVD, DDS, can be installed in the internal drive bays.

A SCSI port supports external devices such as a DLT, LTO, and DTF.



## Sypris Technology

The Model 84 is a member of a long line of Sypris products for acquiring and storing data in high-performance systems. It is designed specifically to record complex instrumentation signals for transient-free data reproduction and high reliability, offering a high value solution to demanding data collection requirements. As such, it represents a highly cost-effective alternative to tape recording in applications requiring fast data rates and high storage densities.

Because the disk recorder can be ordered with a choice of many different types of archival storage devices installed, it has the flexibility to meet a range of storage requirements - all in a single, compact unit.

Commercial off-the-shelf components are used throughout the Model 84. This design approach reduces cost and complexity; enhances reliability and simplifies testing and maintenance.

## Commands

In general, all commands are standard industry recording commands.

## Control

The Model 84 is controlled using the Graphical User Interface via the front panel touch screen, the keyboard and mouse or the remote RS-232 interface.

## Graphical User Interface

The Model 84 Graphical User Interface (GUI) provides a “control panel” that displays current status information and includes simple buttons and standard dialogs for all setup and control operations. Monitoring and controlling the Model 84 is a simple matter of pointing and clicking on the relevant button. One concise screen lets you view all critical status information during record and playback operations. Recorder status and position, as well as channel status, are clearly shown. With the simple Model 84 GUI, you can focus more on your data and less on the details of recorder operation.

## Remote Interface

Remote commands to the Model 84 are in the form of ASCII characters transmitted via an RS232 port. The remote command interface is an English-like, character-based dialog between the Model 84 and the remote user. Commands include play, record, stop, set, get, and help. This interface supports remote control via an attached device (such as a computer) as well as via an interactive conversation directly with a user.

For example, you can connect a laptop computer directly to the serial port of the Model 84 and communicate with the Model 84 using English-like commands typed in with a terminal emulator on the laptop (such as Hyperterm). You could also develop a computer program that generates the Model 84 commands and parses the responses from the Model 84.



**Front and back views of Model 84.**

## Touch Screen

The front panel LCD touch screen allows convenient, fast and easy control and monitoring of recording sessions. Standard industry-wide commands and nomenclature are used throughout the menu system.

## Keyboard/Mouse

Most standard, universal keyboard and mouse can be used and plugged in the front panel of the Model 84.

## Screens and Functions

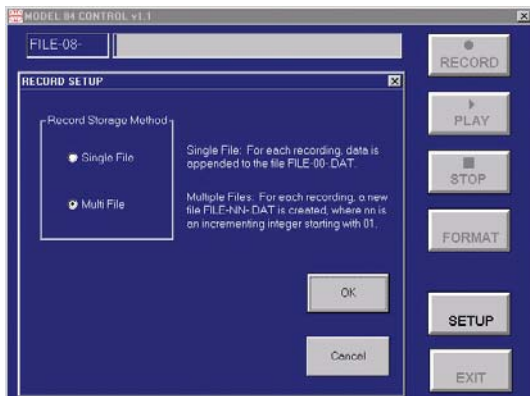
All screens are color, easy-to-read and use standard recorder commands, dialogs and nomenclature. Any screen can be accessed in the hierarchy.



**Main Screen** Displays recorder status by STATE, BLOCK and TIME CODE. In addition, Channel Status shows SERIAL, TIME CODE and AUXILIARY.



**Channel Setup Screen** In conjunction with a keypad screen, the desired data rate, clock rate, time code and auxiliary modes are established with just a push of a few buttons.



**Record Setup Screen** Allows selection of Single-file or Multi-file modes. In the Single-file mode, serial data is written to the RAID as a single

continuous file. When multiple-files are selected, data is recorded and stored in the RAID as individual data files. When using this method each data file in the RAID is stored as an independent entity with its own filename allowing a recording session to be copied to a peripheral archival device.



**Keypad Playback Screen by Block Number** Various keypad screens allow for easy data input of playback file name, playback rate, and starting position.

## Data Archiving

Data copied from the Model 84 RAID may be archived to any installed storage device. Removable-media drives such as DLT, CD, DVD, DDS, LTO, DTF, can be installed in the internal or external drive bays.



*The Model 84 offers removable RAID's as an option.*

## Options

### Bit Sync

Each of the bit syncs supports single ended and differential inputs at speeds up to 20 Mbits/sec for NRZ codes and 10 Mbits/sec for all other codes. Single ended and differential NRZ-L, Code Converted PCM, and corresponding clock outputs are provided.



*Sypris bit sync Model 9917.*

### Expansion Bays

Two different dual-bay SCSI expansion bays are available for the Model 84 — a two bay, half-height drive version suitable for removable hard drives, DVD-RAM, SCSI floppy or other archive devices and a two bay, full-height drive configuration for removable RAID and/or additional archive drives. Both options include cables, SCSI termination and power.



*Half- and full-height expansion bays increase capacity.*



*Front and rear views of Model 84 with Expansion Bay.*

Expansion bays made from either configuration may be daisy chained to expand the storage capacity of the Model 84. Both optional expansion bays may be used in the same chain as long as RAID and archive chains are not mixed.

## Technical Support

Sypris offers complete technical support assistance via telephone, email and on-site repair maintenance and training.

Spare parts are available for current and mature products to ensure reliable operation of all Sypris products. The company also offers repair/exchange parts programs designed to provide customers with a fast and easy means of repair.

# Specifications

## GENERAL

Display	Color VGA LCD with touch screen
Processor	Pentium® class
User Interface	Graphical user interface uses front panel VGA LCD display with touch screen.
Data Compatibility	IRIG 106 Chapter 10 Pending
Mounting	Standard 19-inch RETMA 24 to 30 inches deep
Remote Control	Through RS-232 port
Software (Operating System)	Microsoft NT V4.0 SP6
Optional Accessories	Bit Sync, Expansion Bays
Archival drive configurations	Internal SCSI or IDE; External SCSI

## PERFORMANCE

Data Rate	
TTL	Up to 32 Mb/s/sec
ECL	Up to 150 Mb/s/sec
Data Capacity	Internal minimum 72 GBytes; Maximum 560 GBytes External maximum 9 TBytes
Time Code	IRIG A, B, G
Bit Error Rate	10 <sup>-14</sup>
File System	NTFS
Network Support	10baseT/100baseT; 1 Gbit optional
Data Archiving	Standard computer peripherals including: DLT, CD, DVD, DDS, LTO, and DTF

## SOFTWARE

Windows NT™ 4.0 Workstation  
File-management utilities  
Drivers for installed archival devices

## ACCESSORIES

Rack mount kit  
Keyboard and mouse  
Adapter cables for BNC connections  
Various jumper cable

## OPTIONS

Chassis Handles	Industry standard
Expansion Bay	Full or half-height
Bit Sync	Model 9917 full size PCI board with two independent inputs.
Reverse playback software	Allows downloaded data to be recorded in reverse and to be replayed as if data was recorded normally.

## OPTIONAL

### ARCHIVAL DRIVE

### CONFIGURATIONS

Standard industry offerings: DLT, 4 or 8mm tape, CD-R, CD-RW, DVD-R, DVD- RW, DVD+RW, DVD-RAM  
Other configurations are also available upon request.

*Note: Front-panel-mounted devices connect to the workstation system board via on-board IDE, Ultra-wide SCSI, and/or Ultra2/LVD SCSI interface connectors.*

## PHYSICAL

Size	7 H x 17 W x 22.5 L-inches (17.78 H x 43.18 W x 57.15L cm)
Weight (w/o slides)	40 lbs (18.14 kg) typical with 72 GByte Disk Array and DLT option. Weight depends upon installed options
Mounting	Standard 19-inch (48.26 cm) RETMA rack mount in 24 to 30 inches (609.6–762 cm) deep rack with industry-standard slides

## POWER

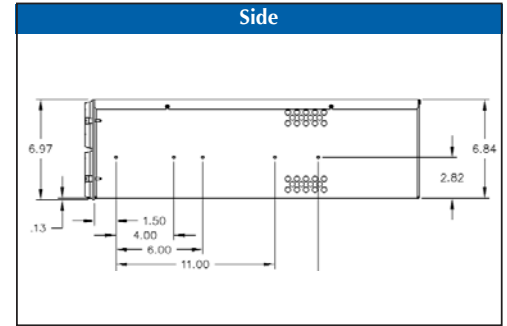
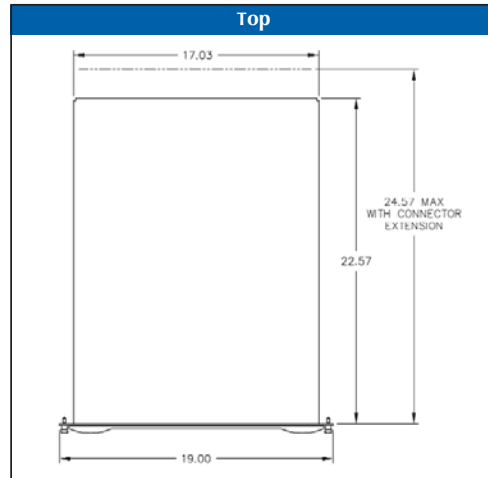
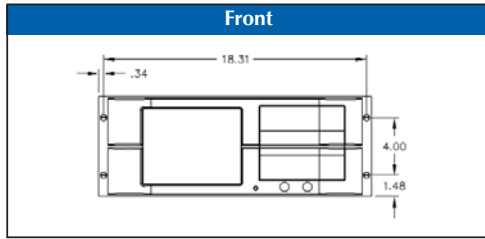
Input Voltage	90 to 135 Vac 180 to 270 Vac
Frequency	47 to 63 Hz
Current	1.8A (typical) at 115 Vac

## ENVIRONMENTAL

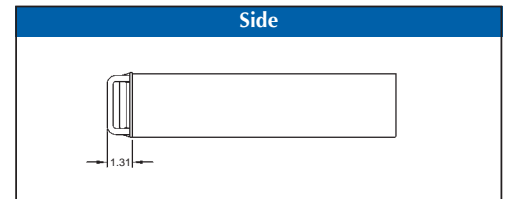
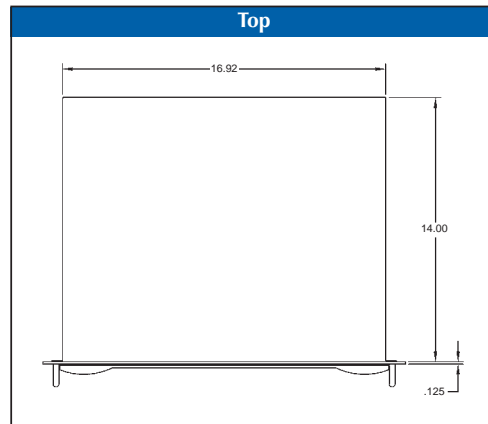
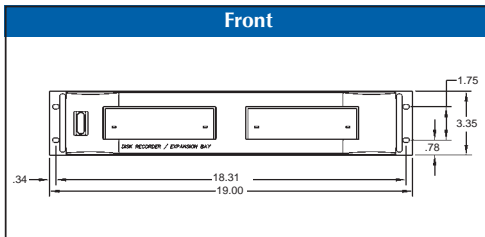
Operating Temperature	41 to 104° F (5 to 40° C)
Storage Temperature	-40 to 158° F (-40 to 70° C)
Relative Humidity	5 to 80% (non-condensing)

# Dimensions

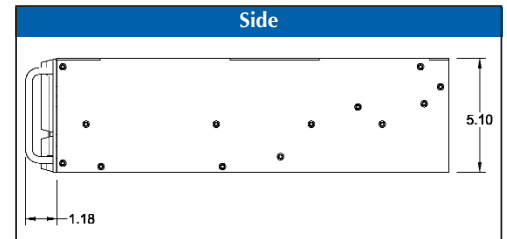
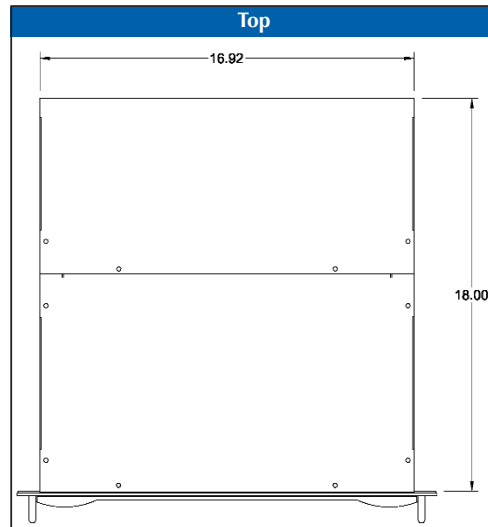
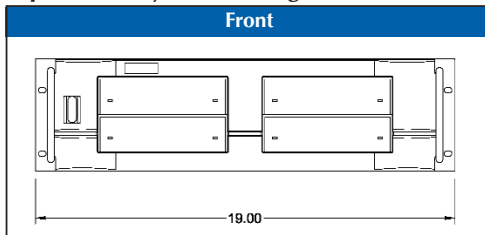
## Model 84



## Expansion Bay — Half-height



## Expansion Bay — Full-height



Measurements in inches.

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