FM 390 Series
The First Photo-Optical Random Access Mass Memory with multi-billion bit capacity
The Foto-Mem FM 390 Photo-Optical Random Access Mass Memory features larger capacity and faster access time — while requiring less space than any other presently available memory system.

Concept
Employing a completely new photo-optical Write/Read technique on a Photo Data Card (PDC), FM 390 significantly reduces material costs by 100:1 or greater, space by 150:1 and features 50 millisecond access time.

Economics
The FM 390 Photo Data Card stores at 1/500th (or less) the cost of disc pack techniques, yet holds the equivalent amount of information.

Operations
Use of the FM 390 is extremely simple. Only four front panel controls are required to operate the System. In addition, the FM 390 is completely modular and plugs into any computer with appropriate interface.

Technique
The FM 390 utilizes the latest Photo-Electro-Optical technology to Write information on the PDC which is stored in the 100 card capacity Foto-Data Cell (PDC). An Ejection System positions the PDC onto a surface. After Write/Read functions, the PDC drops into a second Cell for later recall. Many cells can be stored in each System, providing multi-billion bit on-line capacity.

Expansion
FM 390 can be expanded in two ways: 1) storing one to 250 Cells on-line in each System and using automatic Cell positioning; or 2) employing external storage racks to hold virtually an unlimited number of Photo Data Cells, each with 1 to 3 billion bits of information.

On-Line, Off-Line
The FM 390 may be used both On-Line or Off-Line. The System can Read or Write directly from a computer. Off-line, FM 390 may be used with magnetic tape, disc pack, high speed printers, other input/output devices or another FM 390.

High Storage Capacity
The specially designed Photo Data Card provides extremely high storage with densities of 100X (or greater) than the density of magnetic recording.

Faster Retrieval
Similar to disc pack operations, the FM 390 performs Read functions from a particular or random location on the PDC, reading bytes in parallel and transferring in parallel or serial. A small optical scanning head, operating at high speeds, features a 50 millisecond access time for the System.

Simple to Install
The FM 390 is compatible with virtually all computers. Foto-Mem will supply the interface modules to couple with other devices as required.

(TM) Foto-Data Cell is a Trade (Service) Mark of Foto-Mem, Inc.
(TM) Photo Data Card is a Trade (Service) Mark of Foto-Mem, Inc.
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The diagram above outlines Write/Read functions, storage and controls for the FM 390 System. An Electro-Optical subsystem is used to perform the Write operation. Data is recorded on the Photo Data Card, stored in 100 card capacity Foto Data Cells. (The FM 390 may be operated with multi-Data Cells, on-line.) A pneumatic Ejector System expels the PDC from the Cell onto a Read/Write surface with interlocks for positioning. Photo Sensors READ information directly from the PDC and are designed to allow Write/Read functions simultaneously.

There are two control panels (Operator and Maintenance) for controlling all system functions — Read, Write, On/Off, Stop, Go to Initial Home Positions, Go to Particular Address, Off/Line and Diagnostic test, etc.
Operation of the FM 390 is extremely simple. The associated computer controls the functions of the System. Internally, a maintenance Control Panel enables operation of the other functions previously listed under System Components. The FM 390 is designed for easy access to the electronics in the bottom section by means of doors. The top of the unit swings back to enable access to both READ and WRITE components.

Foto-Mem's Foto Data Cell™ stores 100 individual Photo Data Cards™, providing multibillion bits of information each. Multiple Cells may be ON-LINE simultaneously with extremely large bit capacity.

Foto Data Cells are easily slipped into position in the READ/WRITE section in a matter of seconds. Facility for convenient storage of additional FDC’s is provided.
TYPICAL APPLICATION — Sales Or Service

Introducing the FM-390 into your System can provide a Customer Relations Department direct access to your records. The current status of invoices — partial shipments, receivables, delivery information, payments received, as well as customer discounts may be rapidly and economically obtained for maximum customer servicing and in-house control.

In lieu of tapes or discs, the FM-390 is interfaced to your computer, video screens, keyboards, or other Input/Output devices.

To obtain information, the employee merely types a customer account number on a keyboard. Instantly, the latest account information pertaining to the customer is clearly displayed on the video screen.

Total System
Foto-Mem supplies a unique system of video screens, keyboards and the FM-390, complete with interfaces. This allows a virtually limitless number of terminals — on-line — in your system. Paper duplicates are no longer necessary . . . saving valuable space, material and time costs.

Foto-Mem Products for Information Storage-Retrieval

□ Microfiche-Ulrafiche Viewers
□ Multiplex Viewer-Display Terminal Systems (Data-Vision Systems)
□ Photo-Optical Random Access Mass Memories
□ Automatic Microform Storage-Retrieval Systems
□ Microfiche Reproduction Systems
Send for Further Information

Archival Records
Inquiry Memory
Customer Credit Files
Inventory Control
Actuarial Statistics
Social Security Systems
Payroll
Scientific Data
Any External Auxiliary Memory (Random or Otherwise)
1. Equipment Specifications
   1.1 Memory (Photo Data Card, PDC) — photographic film cards
   1.2 Method of Recording — non-contact photo-optical means
   1.3 Method of Reading — non-contact photo-optical
   1.4 Storage Capacity — 1 to multibillion bit on-line
      a. PDC — 10 to 30 million bits
   1.5 Operational Characteristics
      a. Average access time within the PDC — 40 milliseconds
      b. Data transfer rate — 100,000 Bytes/second
         (Interface available for faster or slower transfer rates)
   1.6 Power into the unit — 110/120V, 60CPS
   1.7 Dimensions — 30" x 60" x 44"

2. Modes of Operation & Control Signals
   2.1 Signals to Unit
      a. Track address — serial or parallel 8 binary bits
      b. Write enable — control signal
   2.2 Signals from Unit
      a. Busy
      b. Command Acknowledge
      c. Read/Write Ready
      d. 8 Data Bits

3. Environmental Specifications
   3.1 Operating
      a. Temperature Range — +40°F to 110°F
      b. Humidity Range — 30% RH to 95% RH, no condensation
   3.2 Storing and Transporting
      a. Temperature Range — −20°F to +140°F

4. Others
   4.1 Other required specifications may be incorporated to meet particular applications.

ORDERING INFORMATION

When requesting a System proposal and price quotation or when placing an order, the following information should be provided.

1. Storage capacity required in number of bits and word length.
2. Exact model of computer or interface requirements.
3. Data transfer rate desired in bits or bytes per second (minimum and maximum).
4. Data input rate in bits or bytes per second (minimum and maximum).
5. Environmental requirements.
6. Space or weight limitations (if any).
7. Other: ___________________________
ACTION REQUEST

Foto-Mem will be pleased to quickly respond to your requirements for information or technical assistance. Please supply the following information for your system requirements:

Technical
1. What capacity do you require? Bits________ Word Length________
2. What computer will you interface?________
3. Data transfer rate required. In bits________ bytes________
4. Data input rate. In bits________ bytes________
5. Special environmental conditions; Please explain: __________________________
6. Space or weight limitations, if any: __________________________

Please fold and staple before mailing

Application
1. Use: __________________________________________

Action Required
☐ Send Application Information
☐ Send Price Quotation and Delivery
☐ Send additional data on: __________________________

My Name __________ Title ______
Company __________________
Address __________________
City __________ State __________ Zip________
Telephone __________

Others in my organization to receive information:
Name __________ Title ______
Name __________ Title ______

My Requirement is ☐ Immediate ☐ Six Months ☐ for information only