Data summary

Display Control Cabinet

Logic elements: Microminiature logic throughout.

Store capacity: 4,096 words, 24 bits.

Store cycle time: 1·8 microseconds (full cycle).

Data code: Marconi Display Code in Sub-routine Mode. ISO 8 in Character Generator.

Display outlets:
6 plug-in for 1 control unit.
12 plug-in for 2 control units.

Number of lines: Flexible, typically 64.

Number of characters: 64.

Ambient temperature range: 0–40°C.

Relative humidity: 90%.

Mains supply: 110 or 230V a.c ±10%. 500 to 1250W according to configuration.

Dimensions:

Height	189·2cm	(6ft 2½in.)
Width	120cm	(3ft 11½in.)
Depth	71·1cm	(2ft 4in.)

Ventilation: The equipment can be operated without air conditioning equipment in the temperature range 0 to 45°C with 90% humidity. Air is drawn in through a filter at the front of the cabinet and is expelled through vents at the top. The cabinet can also be connected to an external forced air blowing system where this is available.

Display Units

Sizes:
8½in. (X2002), 11in. (X2001) 14in. (X2005) and 17in. (X2000).

Front panel controls and indicators: On/off, Focus, Brilliance and mains indicator.

Logic elements: Silicon semi-conductors are used throughout (including e.h.t).

Ambient temperature range: Main and Auxiliary deflection systems 0–45°C.

Relative humidity: 90%.

Power supplies: Integral.

Mains supplies: 110 or 230V ±10% 150–500W per unit.

Ventilation: Self blown.

Dimensions:

X2001 (with covers)

Height	34·3cm	(13·5in.)
Depth	68·6cm	(27in.)
Width	33cm	(13in.)

(without covers)

Height	29·8cm	(11·75in.)
Depth	61cm	(24in.)
Width	30·5cm	(12in.)

X2000 (with covers)

Height	46·9cm	(18·5in.)
Depth	73·7cm	(29in.)
Width	45·7cm	(18in.)

(without covers)

Height	43·2cm	(17in.)
Depth	66cm	(26in.)
Width	43·2cm	(17in.)

Full details are given in TD X2000.

X2000 Data Display Input Devices

A comprehensive range of input devices are available with the X2000 display range together with an auxilliary logic framework capable of accommodating the interface boards. A transmission unit is also available which allows the computer to send and receive data at 600 or 1200 baud rates over telephone lines.

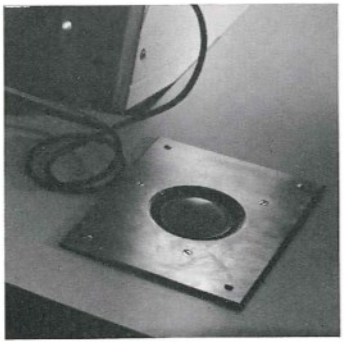
Tracker Ball

The tracker ball is an input device to the computer which is used in conjunction with a display system to give manual control over displayed information.

The operator unit comprises a 3-inch ball which is normally recessed into a desk or control panel, close to the display unit and which may be easily rotated in any direction.

When the ball is rotated, digital signals which indicate motion and direction of motion, are inputted to the computer. Thus, if an associated marker is displayed, it can be arranged that the movement of this marker is directly related to the rotation of the ball in any direction.

It is therefore possible for the computer to calculate the instantaneous position of the marker on the display screen. Thus a highly flexible means of communicating with the computer, via the display screen, is established.



Tracker ball

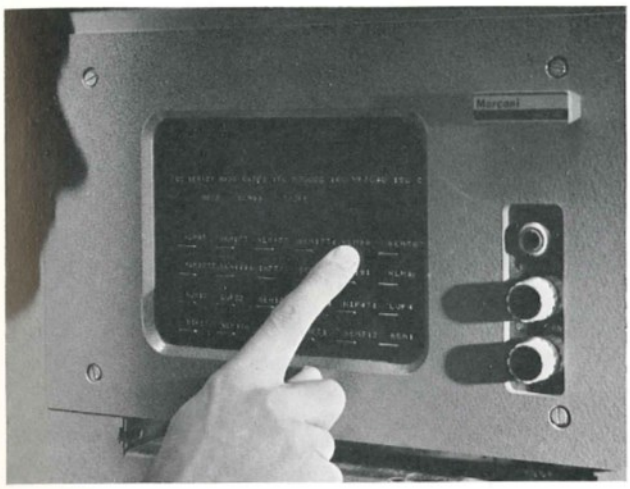
Touch Wire System

The Marconi Touch Wire System is an option to the X2000 series of displays and is a direct input selection device. The system consists of two units: a transparent touch wire mask which fits in front of the screen and provides the man-machine interface, and a decode logic unit which is a board that plugs into a pre-wired socket in the display unit.

There can be up to 32 double wire contacts fitted into the lower part of the mask and the system is so arranged that a finger touch on any one of these contacts results in a unique code being transmitted to the computer. Items of data are written on the screen to serve as labels for each of the contacts and by touching the appropriate contact any of these items can be selected.

As it is possible, by program, to change the labels under the contacts at any time, an unlimited range of selection is provided. Normal information can still be displayed in the upper half of the screen and this will complement the labelling data.

The Touch Wire System has no moving parts and fewer electronic components than a keyboard system and is considerably more reliable. Because it is completely static it is silent and more rapid in operation and results in lower operator fatigue. The direct association of information with the contact also makes a significant contribution to operational efficiency.



Data Display fitted with Touch wires

The Light Pen

The light pen is a hand-held, light-sensitive device which is connected via the display back-up equipment to the computer.

The light pen produces an electrical signal when its field of view is crossed by the spot of the c.r.t. The resultant signal momentarily stops the buffer store output counter and interrupts the computer, thus enabling the computer to identify the picture element to which the light pen was pointing.

By applying suitable software techniques, the light pen can be used for drawing, pointing etc, and offers many advantages in system where a high degree of man-machine interaction is required.

Light pen

Keyboard

The keyboard has self-contained encoding circuitry and is equipped with up to 96 keys. Sixty-four of these electro-magnet keys are in an alphanumeric set and there are up to 32 control function keys which determine for example, the orientation of the graphic display. A feature of the keyboard is the constant duration output irrespective of key pressure variations.

The keyboard may be set into the console in front of the display or may be free-standing.

Auxiliary Logic Frame

The auxiliary logic frame, located in the Display Control Cabinet, provides system interfaces for the input devices described above. One auxiliary logic frame enables the following input devices to be used:

2 light pens.
2 tracker balls.
2 keyboards.
2 touchwires.

If more input devices are required, additional auxiliary logic frames may be specified. If two graphical/Tabular Control Units are specified in the system or the transmission interface is required this unit will be accommodated in an additional cabinet.

Transmission Frame

A framework is available which will interface the MYRIAD Computer to a modem. It provides hardware serialization and deserialization and allows transfers to be made at 600 or 1200 bauds. The unit would, in a graphic system, share the highway tapping elements with the auxiliary logic framework, both being accommodated in a peripheral cabinet.

Disc Store System

A replaceable disc store unit is available as a bulk store medium for MYRIAD Systems. The System comprises a disc store controller and up to 8 disc drive units. The latter units are manufactured by Control Data Corporation and have a data capacity of over 2 million words. The disc pack itself is replaceable enabling long term data to be stored. Data storage is IBM compatible.

The disc controller allows up to 8 disc drive units to be driven from one computer highway and features variable block length working, seek overlap and parity checking on transfers. Integrated circuits are used throughout.

Standard MYRIAD software includes a very comprehensive core disc operating system and routines which facilitate the effective use of the back-up storage.

In the design of the disc controller, provision has been made for housing up to 13 peripheral control boards which may share the same highway tapping unit.

Data summary

Disc Controller Cabinet

Normal access from 2 doors in front, but rear doors also fitted.

Dimensions:

Height	1·89m	(6ft 2¾in.)
Depth	52cm	(1ft 8½in.)
Width	120cm	(3ft 11½in.)
Weight	350kg	(650lb)

Disc Drive Unit

Approx. storage capacity: 7¼ million bytes each of 8 bits.

Maximum access time: 165ms.

Track to track access time: 24ms max.