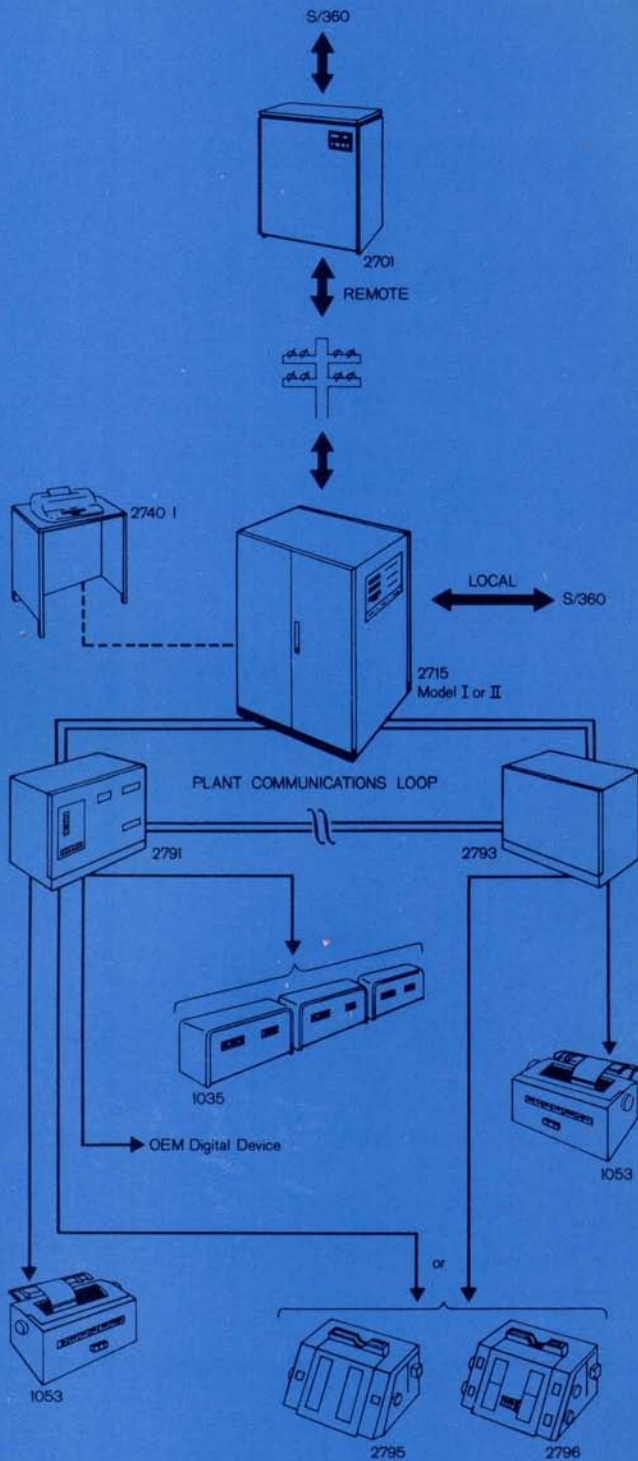


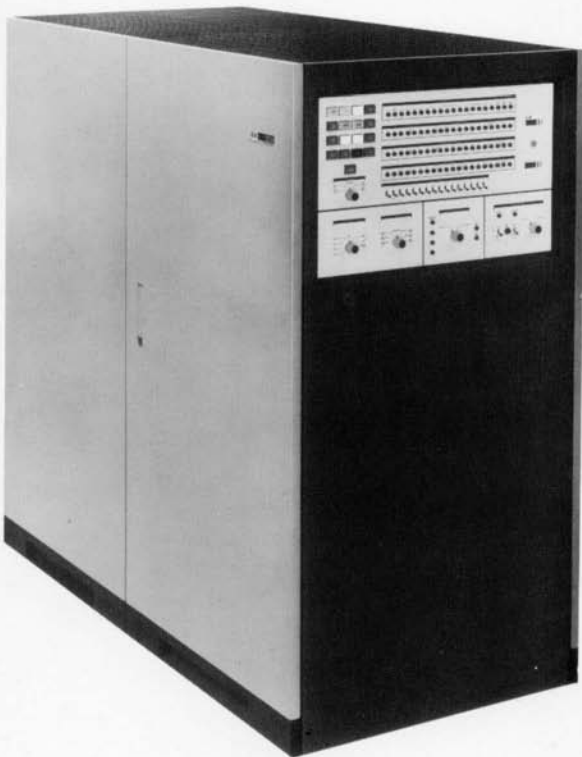
customer engineering announcement

The IBM 2790 Data Communication System

is basically a two-wire Communication System designed to meet the expanding requirements for in-plant data communications and production monitoring.

- All two-wire system
- Up to 100 Area Stations attachable
- Up to 1024 small portable Data Entry Units attachable
- Transmission Line Rate is 500,000 bits/second.
- Up to 100 IBM 1053 Printers
- Up to 300 IBM 1035 Badge Readers





The IBM 2715 Transmission Control Unit

is a Micro Coded Multiplexer which controls the flow of data to and from the various terminals attached to the high speed transmission loop.

Available in Two Models

The 2715 Model I attaches directly to a Multiplexer channel for local operation.

The 2715 Model II attaches to an IBM 2701 equipped with SDA Type II and Transparency features, or to an IBM 2703 with Synchronous Line Set, or to a S/360 Model 25 equipped with ICA and SDA for remote operation.

Standard Features

- Multiplexor or BSC Adapter
- 2790 Loop Adapter
- Operator/CE Panel
- Integral disk for ICPL, buffering, microdiagnostic storage, and statistic storage
- 16 K Bytes Ferrite Core storage (Bridge Storage Module)
- 1.2 Microsecond cycle operation with word width of 18 bits
- Real Time Clock
- Audible Alarm with customer contact closure

Optional Features

- Storage Expansion to 32 K bytes
- Line Transfer Switch (Manual)
- Two Processor Switch
- Dual Communications Interface
- IBM 2740 Model I Keyboard/Printer attachment
- Internal Synchronous Clock

The IBM 2791 Area Station Model 1

is a shop floor control terminal providing two-way communication. It is a combination of an input-station and a controller for IBM 2795/2796 Data Entry Units, IBM 1035's and IBM 1053 Printer. It is table mounted and performs the following standard functions:

- Reads 10 column IBM 357/1030 type Identification Badges.
- Reads 80 column cards.
- Provides for entry of variable data via a 12-key unit consisting of 10 digits plus 2 special symbol keys.
- Variable Data fields of up to six digits can be verified by the operator in a visual display prior to transmission.
- Time of day displayed when manual entry is not in use.
- Provides 9 transaction selection buttons which can be labeled with the customer's own terminology.
- Guides operators through transactions, step at a time, through a panel of 31 addressable lights which can be labeled with the customer's own terminology.
- Provides for stacking of entries to reduce operating time for experienced operators.

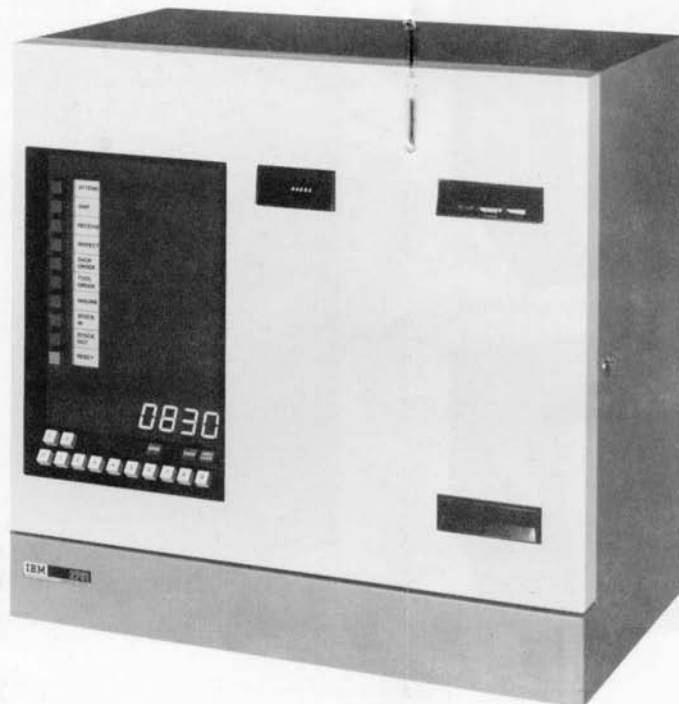
- Provides for multiple entries within a given transaction.
- Provides an Abort Transaction capability to cancel a partial transaction.
- Provides a monitor key to permit supervisory personnel to approve of a given transaction.
- Provides an interface to the high speed transmission loop.

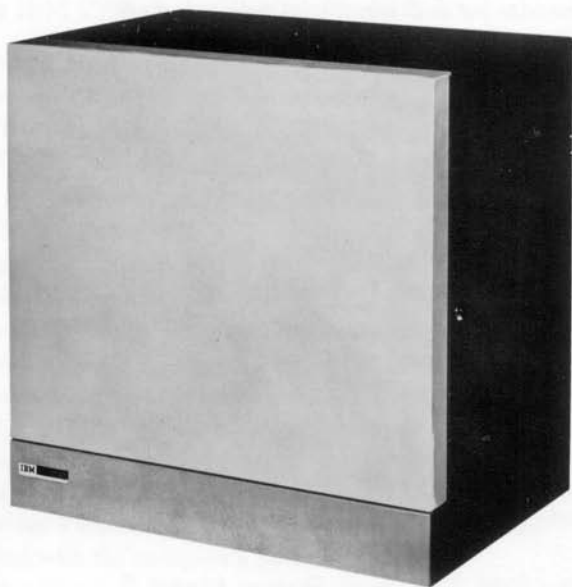
Optional Features Available:

- Attachment of any combination of 32 Data Entry Units in groups of eight.
- Attachment of an IBM 1053 Printer.
- Attachment of up to 3 IBM 1035 Remote Badge Readers.
- Attachment of an OEM device via a Decimal Input Interface.

The IBM 2791 Area Station Model 2

has all the standard capabilities of the IBM 2791 Model 1 but cannot accommodate optional features. The Model 2 can be converted to a Model 1 in the field where the installation of optional features is desired.





The IBM 2793 Area Station

is a shop floor control terminal provided for areas where Data Entry Unit capability is required, but the input station (card-badge-manual entry) is not required. It is designed to service eight Data Entry Units as Standard. On a feature basis it will:

- Service an additional 24 Data Entry Units
- Service an IBM 1053 Printer



The IBM 2795/2796 Data Entry Units

are compact industrial units for reporting job and machine status and production information. These units, designed for the use of production workers at their work location, feature 2-wire transmission at 40 characters per second.

The IBM 2795 Data Entry Unit

provides two 10-position switches, a 10 column badge/card reader and a phone jack in a single compact unit for bench, table or wall mounting.



The IBM 2796 Data Entry Unit

provides all functions of the IBM 2795 Data Entry Unit, plus two additional 10 position switches, four positions of manual entry and a monitor key.

Significant Technologies

Microcode

Microcode provides the operating mode of the IBM 2715. The microcode is located in Read/Write core storage, loaded from an Integral Control Program Loading device (ICPL). The Microcode performs the functions of the IBM 2715 and is modular in design permitting the sharing of many routines.

SLD-30/SLT-30

The IBM 2790 system employs functionally packaged 30 nanosecond SLT* and 30 nanosecond SLD* circuitry.

- * SLT (Solid Logic Technology)
- * SLD (Solid Logic Technology—Dense)

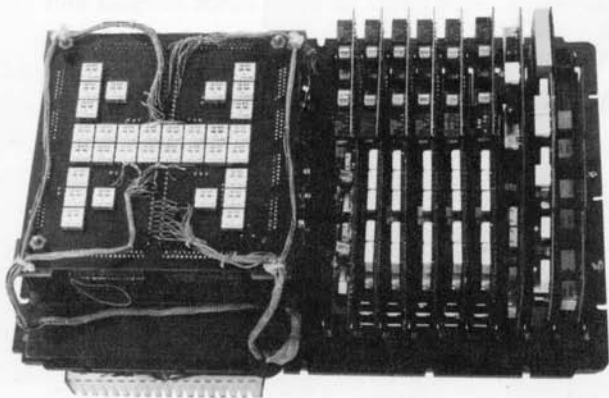
MST-1

The IBM 2715 Bridge Basic Storage Module (BSM) employs MST-1* circuitry

- * MST-1 (Monolithic System Technology)

The Bridge Basic Storage Module (BSM)

A ferrite core air-cooled memory unit designed to interface with MST-1 circuitry. Read/Write cycles are contiguous, requiring 1.2 microseconds. Access time is ≤ 450 nanoseconds. Trouble analysis procedure documentation will be provided to assist the Customer Engineer in locating malfunctions. Seventy-five percent (75%) of the malfunctions should not require the use of an oscilloscope. Major array failures will result in BSM replacement including small cards.



Plant Communications Data Transmission

Transmission is polarity modulated pulses at 500,000 bits/second.

The high speed transmission loop can simultaneously receive on eight high speed channels and transmit on five low speed channels. All communication over the loop is achieved through the use of message framing. A basic Frame is 90 microseconds long and is comprised of 5 bytes.

The Frame rate on the loop is 1850 Frames per second while the channel Frame rate is 206 Frames per second. The Frame rate on the output subchannel is 41 Frames per second. Frames are sent in sequence and are separated by a series of Sync bytes.

Maintenance

The maintenance philosophy of the IBM 2790 System is to provide maximum customer availability and system serviceability through on-line detection, isolation, and recording of errors. Error statistics, logged on the IBM 2715 integral disk, are analyzed by the 2715 micro programs for automatic subsystem reconfiguration. These error statistics are periodically forwarded to the host Central Processing Unit for processing by the Environmental Record Editing and Printing (EREP) Program. Deferred system maintenance can be easily scheduled after analysis of the printed error statistics.

The IBM 2715 will be repaired off-line. A card swap maintenance philosophy will be employed for cards which have multiple usage. Card substitution will be used for unique cards. Maintenance Aids include:

- A CE Panel
- Disk resident diagnostics and exerciser programs.
- Off-line system installation exercisers.
- Binary Synchronous on-line tests.

Career path for the IBM 2715 is General Systems.

The IBM 2791/2793 Area Stations feature on-line diagnosis, off-line repair, and on-line verification.

Maintenance aids include:

- A CE Panel
- System resident diagnostic and exerciser programs.
- CE latch card.
- Test cards and badges.
- A test pattern generator.

Career path for the IBM 2791/2793 is Data Recording.

The IBM 2795/2796 Data Entry Unit (DEU) error isolation to the faulty unit and diagnosis requirements for the DEU adapter in the 2791/2793, are provided by the 2790 System.

The customer is responsible for isolating and removing a defective or malfunctioning DEU, and for transporting it to the CE service area. The CE, on his next visit, will inspect and repair the DEU. On-line verification of the repair will be made using customer provided lines in the CE service area.

In the event the customer is unable to isolate a defective DEU, the CE may be called to provide assistance in locating the failing unit.

IBM recommends, for total system availability, that the customer rent or purchase a supply of maintenance spares. The number of spares recommended is determined by the quantity of Data Entry Units installed. In the event of a Data Entry Unit malfunction the customer would replace the malfunctioning unit as previously described. When the customer received the repaired unit it could be reinstalled on the system or placed in the supply of maintenance spares.

Career path for the IBM 2795/2796 is Data Recording and normally, the same CE will service both DEU and the IBM 2791/2793.