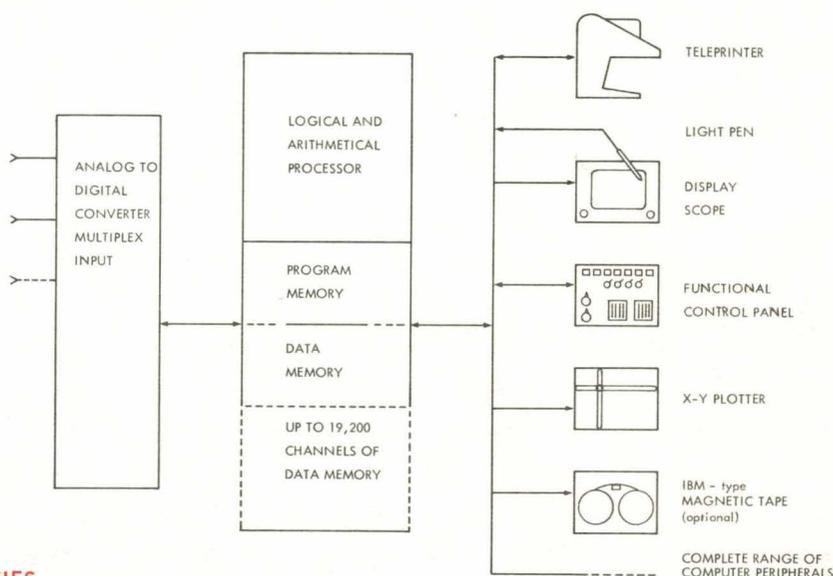


THE TENNECOMP TP-1000 NUCLEAR ANALYSIS SYSTEM

the CONCEPT

The TENNECOMP TP-1000 system is a complete pulse-height analysis and data reduction system. It is a fully integrated unit from the ADC to the reduced data output. The heart of the system is a general purpose arithmetical and logical processor which gives the user a highly versatile and flexible nuclear analysis system. A wide variety of input and output devices are available, but most important is the ability to reduce the data to meaningful information immediately and to easily adapt to new problems. It can give on-the-spot reduction such as the unfolding of complex gamma ray spectra, integrating the area under peaks, finding the centroids of peak, calculating the energy of the channel number, and much more. The TP-1000 is a ready-to-go system and requires no knowledge of computers or programming. The system organization and features are described below.



INPUT CAPABILITIES

- * Up to 19,200 channels
- * 260,000 counts/channel capacity (other capacities available)
- * Multiple detector inputs
- * Combined count rates of up to 100,000 counts/sec

COMPREHENSIVE DISPLAY AND OUTPUT FACILITIES

- * 8 in. by 8 in. Big Screen Display
- * Lightweight contact-sensitive Light Pen
- * X-Y Plotter
- * Teleprinter
- * Wide range of optional input/output devices

VERSATILE PROGRAMS

- * Pulse-height acquisition
- * On-line unscrambling of discrete and continuous scintillation spectra
- * User-Aid programs for on-line data processing and analysis
- * FORTRAN program preparation package (ASA Standards)
- * Custom Programming for your Special Jobs

SYSTEMS DESCRIPTION

ANALOG-TO-DIGITAL CONVERTERS

Choice of converters

- * A new Tennelec ADC with μ sec conversion time. Up to 4,000 channels.
- * Conventional Wilkinson-type ADC with a clock rate of 40 MHz. Up to 4,000 channels.

MEMORY

- * 8 μ sec cycle time
- * 260,000 count capacity per channel (standard)
- * Accommodates 3,000 data channels (standard)
- * Modularly expandable in increments of 2,700 channels

LOGICAL AND ARITHMETIC PROCESSOR

- * 12 bit instruction word length
- * General purpose instructions
- * Simple plug-in modules for input/output devices

DIRECT MODE INPUT

- * Channel is incremented directly by hardware
- * Up to 100,000 count/sec are possible

INDIRECT MODE INPUT

- * Channel numbers go into a memory "list"
- * Multi-dimensional data may be transformed by logical and arithmetical processor at rates of 300/sec

LARGE SCREEN DISPLAY

- * 8 in. by 8 in. useful size
- * Bright screen
- * Magnetically deflected

LIGHT PEN

- * Lightweight pencil size barrel
- * Durable plastic fiber optics
- * Contact-sensitive switch contained in pen tip
- * Sensitive to wide range of screen intensities
- * Insensitive to ambient light

SOFTWARE PACKAGES

PULSE-HEIGHT ANALYZER

- * Complete pulse-height analysis software
- * Communication with user through functional control panel and conversational "keyboard interpreter" on teleprinter
- * Display software
- * Output software

USER-AID SOFTWARE

- * Display scale expansion
- * Peak finding
- * Integration under peaks
- * Background subtracting
- * Light Pen sketching

Nal(Tl) SCINTILLATION GAMMA SPECTROSCOPY

- * Display both pulse-height distribution and actual gamma spectrum while data is accumulating
- * Automatically correct for variations in scintillator efficiency with gamma energy
- * Reduce Compton background and escape peaks by a factor of 30 from 100 keV to 10 MeV
- * Works with discrete or continuous spectra or combinations

PROGRAMS FOR EXPANDING SYSTEM CAPABILITIES

- * American Standards Assoc. FORTRAN
- * JOSS-like interpretive system for analysis program preparation during data acquisition
- * Neumonic Assembler
- * Linking Loader
- * Conversational Debugging Program

CUSTOM PROGRAMMING

- * Special programs for activation analysis, tracer studies, etc.
- * Modifications to existing programs or additions of new ones done by our programmers to your specifications

OPTIONAL SYSTEM COMPONENTS

DETECTORS

- * 3 in. by 3 in. Nal(Tl) gamma detector
- * Ge (lithium drifted) gamma detector
- * Liquid scintillation neutron detector

DETECTOR ELECTRONICS

- * Main amplifier
- * Preamplifier
- * Electronics matched to detector for maximum performance

MAGNETIC TAPE

- * IBM-compatible
- * Tape Buffering for delayed analysis

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