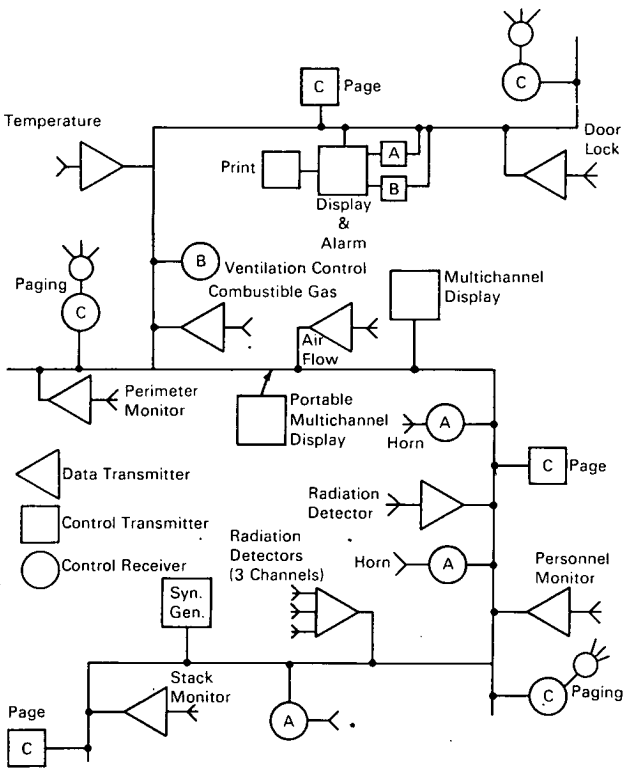
AEC-NASA TECH BRIEF

Versatile Telemonitoring System



Typical Layout of a System

The problem:

To provide a flexible and expandable remote monitoring capability that will not be made obsolete by future demands. All applications are difficult to visualize and many often become more apparent as systems are installed and inquiries are discussed.

The solution:

A system that provides versatile multichannel telemonitoring—a small-scale system that can be installed economically and is capable of considerable expansion. The system is designed to require an absolute minimum of wiring for installation, so that small but expandable systems are feasible. Input parameters and readout devices are relatively unlimited. The system also contains some remote-control features.

How it's done:

This telemonitoring system contains the following basic units: data transmitter, control transmitter, control receiver, display or readouts, and sync generator. All units are connected together by a two-conductor coaxial cable. Location of the units or cable pattern is not restricted. A typical small-scale system is diagramed in the figure.

The data transmitter converts an input dc voltage to a compatible form for the interconnecting cable. The input voltage is generated by the transducer equipment associated with each monitored parameter.

The control transmitter generates signals that can be used for "on-off" operation of remote equipment (horns, lights, doors, etc.). Several different control codes can be generated by the same transmitter. The control receiver decodes the signals sent by the control transmitter and, when appropriate, provides the signal for operation of the remote equipment.

Display and readout units have no standard form; in general they decode the data transmitter's information and present it in a usable form. Synchronizing signals are generated by the sync generator; only one generator is required for each system, although the number of data transmitters, control transmitters, control receivers, and display or readout units is relatively unlimited.

(continued overleaf)

A prototype system, set up for demonstration purposes, consists of two data transmitters, a control receiver, a control transmitter, a multichannel oscilloscope bar display with channel and scale markers, a numerical single-channel display, and a numerical multichannel oscilloscope display. The sytem is capable of 255 data-input channels and seven control codes. Two types of radiation detector and a temperature sensor are available as input transducers. All units are connected together with about 5000 ft of cable.

Notes:

1. This information may interest such organizations as hospitals, schools, and processing plants.
2. Inquiries concerning this information may be directed to:

   Office of Industrial Cooperation
   Argonne National Laboratory
   9700 South Cass Avenue
   Argonne, Illinois 60439
   Reference: B69-10655

Source: R. W. Fergus
Industrial Hygiene and Safety Division
(ARG-10339)

Patent status:

Inquiries concerning rights for commercial use of this innovation may be made to:

Mr. George H. Lee, Chief
AEC-NASA Space Nuclear Propulsion Office
U.S. Atomic Energy Commission
Washington, D.C. 20545