

# RAL

## DESIGN & DISCOVERY

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**RUTHERFORD APPLETON LABORATORY**  
SCIENCE AND ENGINEERING RESEARCH COUNCIL

#### BUILDING MANAGEMENT SYSTEM

The Building Management System (BMS) at the Rutherford Appleton Laboratory is used mainly as a plant and environment monitoring and alarm system. Its use as a control system is limited, in general, to space heating systems since most other plant had satisfactory controls before the installation of the BMS.

The BMS installed is the type which uses distributed rather than central intelligence, for the monitoring, alarm and control functions. There are currently 42 outstations installed at the Laboratory and a further 4 in Abingdon at The Cosener's House. Each outstation is a totally self contained unit capable of operating in complete isolation from the remainder of the system. All the outstations at the Laboratory are connected to one of five legs of a star connected data highway which terminates at a central computer located in Building R18. The outstations in Abingdon are connected to Building R18 via a British Telecom line using modems, and an autodialling facility.

The central computer receives alarms from the outstations with only high priority alarms being transmitted immediately from the outstations at The Cosener's House. It can also be used to interrogate the outstations to obtain plant status information, operating parameters, etc. The usual way of altering alarm settings, and operating parameters where plant is being controlled, is via the central computer, but it is also possible to carry out these actions at the outstation using a portable computer. Alarms received at the central computer are printed out and selected information is sent from outstations to the central computer every 24 hours to provide a historical record of plant performance and environmental conditions.

The BMS provides the Site Services Workshop staff with up to the minute information and alarms from all kinds of plant including space heating installations, air conditioning plant, clean room plant, lifts, fire alarms, etc. It is often possible to take action to remedy problems without the building user being aware that anything is amiss. The BMS permits the consumption of energy to be monitored and energy to be saved by providing immediate reporting of plant malfunctions.