

PORTABLE DATA ACQUISITION SYSTEM

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ABSTRACT

A portable data acquisition system package is developed based on a microcontroller. The microcontroller is a complete solution for control and data collection applications where no external computer logic, external analog signal conditioning or other special hardware is needed. The microcontroller has eight input channels and one output channel. This allows connection to a variety of sensor devices such as temperature and pressure.

By using portable data acquisition system, we do not need to bring PC to the field to collect data. All the data can be stored into the battery backed RAM. In either case, the program will automatically execute on reset or power up and it is no longer necessary to have a PC connected to it.

The microcontroller was connected to the serial port of the PC for software development. The language used to program the system is C. Once the task required has been programmed, the program can be burned into the EPROM for permanent installation on the microcontroller board.

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1.0 INTRODUCTION

Nowdays, the use of portable data loggers have become of increased importance to researchers and scientists. One of the reasons why this is so important is that these portable data loggers enables data acquisition to be carried out on site without bringing the PC.

The portable data acquisition system is a system that is based on a microcontroller. The microcontroller is a general purpose one and can be used for a variety of applications. Many sensors can be interfaced without external signal conditioning such as thermocouples, semiconductor temperature sensors, thermistor, strain gauge and etc.

The microcontroller employs dynamic C for programming. During software development, the microcontroller is connected to the serial port (using RS 232) of the PC. Dynamic C provides an integrated environment with short compiling and download times. Dynamic C enables instant viewing of the results and effects of the various C statements.