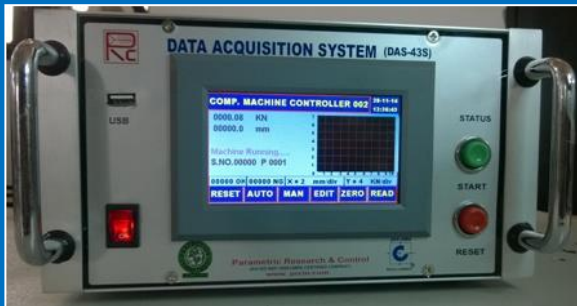


## Data Acquisition System

### Description:

Data acquisition is the process of measuring an electrical or physical phenomenon such as load, pressure, torque, voltage, current, temperature, pressure, or sound with a computer. A Data acquisition system consists of sensors, measurement hardware, and a computer with programmable software. Compared to traditional measurement systems, PC-based Data acquisition systems exploit the processing power, productivity, display, and connectivity capabilities of industry-standard computers providing a more powerful, flexible, and cost-effective measurement solution.

A Data Acquisition System is comprised of three parts; an I/O sub-system, a host computer and the controlling software. However, some systems, such as the Power DNA Cube running a standalone Linux application combine the I/O sub-system and the host CPU in the same package. These systems are often referred to as embedded DAQ systems.



### Data Communication:

Standard systems with a separate host computer and I/O system require a method to communicate with each other. The most common Data Acquisition System interfaces are the PCI bus, PXI bus, Ethernet, USB and Serial I/O. However there are systems based on many other architectures including GPIB, CAN bus, Fire wire (IEEE-1394), PCI Express as well as many legacy bus architectures including VME, Multi Bus, ISA bus, NU Bus and many more.

### Function of data acquisition system:

Data acquisition and conversion systems are used to acquire analog signals from one or more sources and convert these signals into digital form for analysis or transmission by end devices such as digital computers, recorders, or communications networks. The analog signal inputs to data acquisition systems are most often generated from sensors and transducers which convert real-world parameters such as pressure, temperature, stress or strain, flow, etc., into equivalent electrical signals. The electrically equivalent signals are then converted by the data acquisition

system and are then utilized by the end devices in digital form. The ability of the electronic system to preserve signal accuracy and integrity is the main measure of the quality of the system.

The basic components required for the acquisition and conversion of analog signals into equivalent digital form are the following:

1. Analog Multiplexer and Signal Conditioning
2. Sample/Hold Amplifier
3. Analog-to-Digital Converter
4. Timing or Sequence Logic



## HMI

HMI (Human Machine Interface) is a medium for information exchange and mutual communication between electromechanical system's and the user. It allows the user to complete settings through touchable images or keys on the user-friendly window. This not only offer's fast and convenient control of manufacturing automation, but also has replaced traditional controlling panel's which need extensive wiring.

Human Machine Interface (HMI) equipment provides a control and visualization interface between a human and a process, machine, application or appliance. HMIs allow us to control, monitor, diagnose and manage our application.

The Human Machine Interface (HMI) includes the electronics required to signal and control the state of industrial automation equipment. These interface products can range from a basic LED status indicator to a 20-inch TFT panel with touch screen interface. HMI applications require mechanical robustness and resistance to water, dust, moisture, a wide range of temperatures, and, in some environments, secure communication. They should provide Ingress Protection (IP) ratings up to IP65, IP67, and IP68.

## Features and Benefits

- Supports high source and sink output IO capabilities up to 60mA for direct drive of LEDs.
- High-speed PWM units enable LED dimming and screen back lighting.
- Robust touch technology provides reduced wear and increased product lifetime.
- The excellent signal-to-noise ratio makes the design immune to water, moisture, or dust and enables operators to use gloves.
- Capacitive touch eases design of full hermetic or sealed products, while power efficiency minimizes heat dissipation.

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## We also manufacture:

- ✓ Design & Development of Customized requirements
- ✓ Microcontroller Based Systems for Load, Pressure, Torque, Displacement, Temperature, Multifunction Digital Indicators, Batching Systems, Data Acquisition Systems, Air Leakage Testing System, Light Testing System, Computerization of Materials Testing Machines, Timers, Counters, Production Counter, Impact Tester, Hardness Tester.