A Guide To Digital Control Panels

Digital control panels have had an important role to play in the major industrial processes. Digital controllers are being used heavily in a host of industrial equipment. This has resulted in the operating device having an increased flexibility, efficiency, and reliability. While there are many reasons for the use of digital controllers in industrial equipment, the fact that they are able to keep the equipment more stable and less prone to overheating has only increased their demand.

The addition of a digital control panel into a system can increase the industrial control over the equipment with control panels making the controlling of the following quantities easier and smoother:

- Temperature
- Voltage
- Pressure

What Are Digital Control Panels?

Digital controls can be defined as electrical devices that are used to control systems. Simply put, they are meant to make sure that devices and equipment can be properly regulated and their operations controlled effectively. Commonly digital controls are made up of:

- Digital to Analog Convertor – To convert the digital outputs into analog inputs
- Analog to Digital Convertor – To convert the analog inputs into digital outputs
- Programming to link the inputs and outputs – The program installed in the digital control panel makes sure that the device is able to perform functions such as stabilizing of the system, monitoring the inputs, controlling the devices, and amplifying the lower signals.

The workings of the digital controllers can be described as being complex at best. They are able to store input values over a time using them to produce values of output closely based on the sum of the values of inputs recorded. The uses of Laplace transform to convert signals that are discrete into complex representations of frequency domain.

The increasing use and demand of the industrial control panels has meant that they are being produced in a whole host of different sizes. Typically, they come in the size of a standard desktop controller but have also been made available in the size of a micro controller among other sizes. Digital controllers are fitted in and used encased in a box. The type of the boxes used for digital controllers depends on the type of situation that they are used in, which can either be moist, humid, or one with the risk of an explosion.

Common types of digital control panel boxes are:

- Dust proof boxes
- Explosion proof boxes
- Waterproof boxes

- Nema 1 terminal boxes

Nema 1 boxes for example are best suited for use in indoor conditions, while Nema 4 terminal boxes are best suited for outdoor uses able to face the adversity of the harsh weather.

Where Are These Control Panels Used?

There are a variety of uses for digital control panels in industrial operations. Each industry uses different types of digital control panels and the type to be used depends on the technical specifications of the particular industry. The most common places they are used in are:

- Industrial chillers
- Industrial boilers
- Air Handling units
- Controllers for lighting