sifam tinsley
PRECISION INSTRUMENTATION

Application Note

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Measurement of phase/phase-to-phase voltage & line current using single voltmeter and ammeter

Overview

In most industrial applications, electricity is distributed in three phases i.e., R-Y-B (L1-L2-L3) system. Heavy industrial loads like motors, air compressors, work on a three-phase supply; Thus, electrical control panels are installed for controlling and monitoring of the electrical parameters of the system. In these panels, analog meters are generally deployed for measurement and monitoring of current and voltage levels of the installed system. This also helps ensure that the three-phase system is balanced.

Problem Statement

In a three-phase system, in order to monitor current in each line, separate ammeters have to be used in each line. Similarly, for phase and phase to phase voltage measurement, separate voltmeters have to be used. Due to this, individual meters are installed that occupy more space and increase the cost of installation.

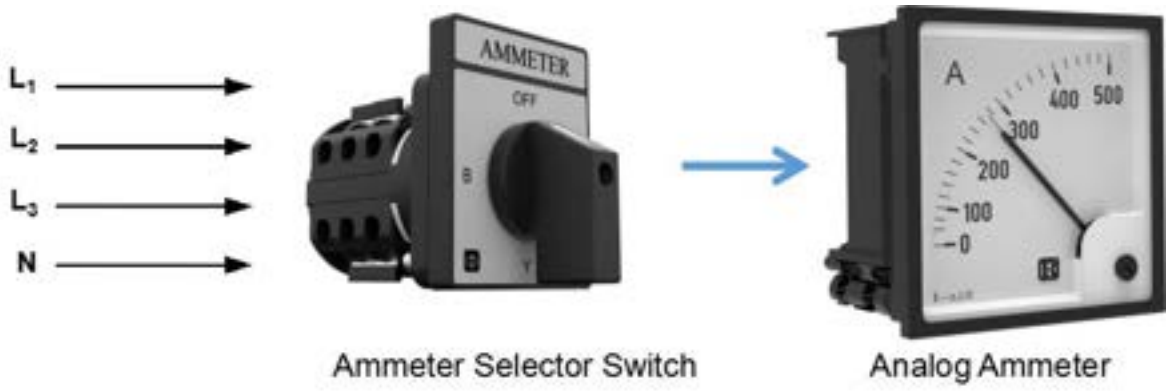
Solution

Sifam Tinsley Selector Switch

The basic idea behind the use of a selector switch is to reduce the number of panel meters used to monitor currents and voltage of the installed system.

As replicated in the diagram below, the Voltmeter Selector Switch can be connected between a Voltmeter and the three-phase line. Whenever the user needs to measure the voltage of a particular phase, the switch position could be changed to any one of the desired positions i.e. “RY” “YB”, or “BR”. The respective phase voltage will be displayed on the Analog voltmeter

Similarly, in case of Ammeter Selector Switch, the respective line current can be measured on the Ammeter by switching the switch position from “OFF” to “R”, “Y” & “B”



Ammeter Selector Switch Analog Ammeter

Using this solution, a single analog meter can be used to monitor the parameter of a three-phase system which results in a cost-effective solution with better aesthetics.

Other applications areas:

- Industrial Panel
- Motor Controls
- Coolant Pumps

Available features:

- Compact Size & Reliable Design
- Multi pole design with multiple stacks
- Quick and Easy Installation
- High Protection Class :IP 50

Featured Product

N30H

Available Features

- Measurement: current and DC voltage up to 5A and 600V
- Three-color display (14 mm high), programmed in three intervals of the measured value
- Meter programming from the keyboard or through the RS-485 interface by means of the free delivered e-Con software
- Four alarm outputs with signaling by LED diodes, operating in 6 different modes
- Conversion of any measured value into a 0/4...20 mA, or 0...10 V analog signal
- Storage of minimal and maximal values for all measured quantities
- 21-point individual characteristic for the measured value