

# Understanding Basic Concept of Electrical and Electronic Systems

Asadullah Shah



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# **UNDERSTANDING BASIC CONCEPT OF ELECTRICAL AND ELECTRONIC SYSTEMS**

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**Editors**

Asadullah Shah



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# 23. SUMMING AMPLIFIER

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## 23.0 Abstract:

The summing amplifier, as its name employs enabling you to add several signals together. The signals such as audio streams can be summed together for a composite output signal. An audio mixer is another good example of adding waveforms (sounds) from different channels (vocals, instruments) together before sending the combined signal to a recorder.

## 23.1 Summing amplifier:

The summing amplifier is an application of the inverting op-amp configuration. The summing amplifier has two or more inputs and its output age is proportional to the algebraic sum of its input voltages. Fig. 23-1 shows a two-input inverting summing amplifier.

Case-I: If all the three resistors are equal ( $R_1=R_2=R_F=R$ ) then