But, first of all we need to be careful that the in our discussion of this analog electronics, we will be considering this signals this signal this signal having two types either they can be voltage or current.

So, that is the assumption and it is not mandatory that the signal here and here should be of same type say for example, this may be voltage this may be current and so and so. So, we do have four different possible situation; leading to four basic configurations. So, depending on the signal type here and signal type here, we will be having four basic configurations out of this this model.

And only thing is we need to be careful that if we, if we define say this signal nature, then that should be supported by the amplifier and also whatever the signal it is coming to this mixer need to be consistent with that signal time. Same thing whenever, we are talking about the signal here we should be careful that the this block as well as this block it is they are characterized based on the signal type.

So, if I say this is voltage and if I say this is also voltage. So, A is the voltage gain and this is expecting to generate voltage. So, this is also converting voltage to voltage. On the other hand, in case if say this is voltage, but say this is current. So, then this this block it is converting voltage to current which means this should be transconductance. So, then A should be transconductance which receives a voltage and converts the signal in the form of current.

Now, if you consider here, it takes the signal in the form of current and it is it is supposed to produce a voltage here. So, that the mixer will be having appropriate conversion there, without really transferring it. So, if this is transconductance then this β should be impedance or resistance. And if this is voltage this is voltage this should also be voltage. So, then only this two voltage you can mix.

So, based on the situation based on different types of signals the unit of the transfer function should; should be appropriately modified. So, it may be unitless or it may be transconductance or transimpedance or vice versa. So, we will be talking about four basic configurations, but before that let me take a short break and then we will be coming back.