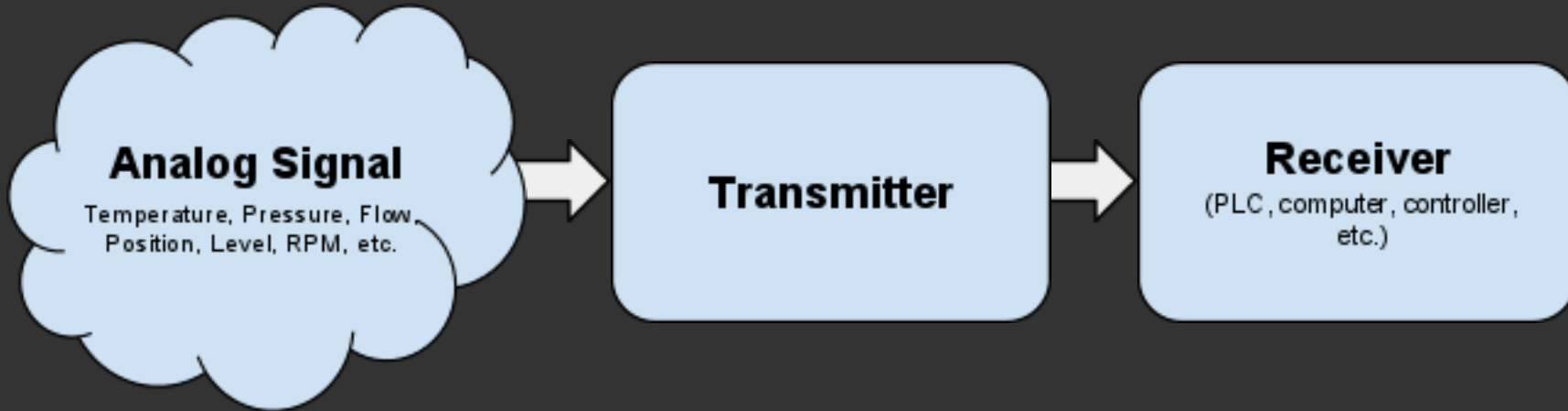


# Transmitter Basics

by Custom Electronics Systems

# What is a Transmitter?



- Senses some physical property (i.e. temperature, pressure, flow, position, level, RPM, etc.). This physical property is referred to as the "analog signal".
- Converts the "analog signal" into an electrical signal.
- *Transmits* the electronic signal to a PLC, controller, etc. which performs some action based on the data.

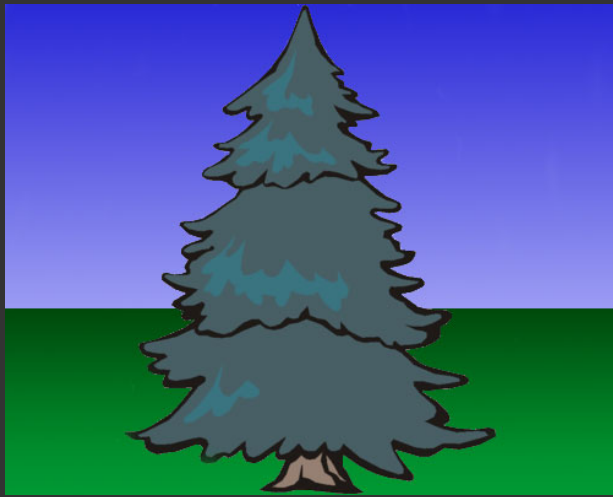
# Real World Example

- We want to measure wind speeds from 0 to 100 mph.
- Our transmitter measures wind speed and is capable of output between 0 to 5 volts.



- The range we want to measure (i.e. 0-100mph) is called the "span". The top of end of the range (i.e. 100mph) is referred to as the "full scale".

# How Does it Work? (cont.)



*Wind speed is 0mph.*

The transmitter outputs 0 volts to a computer.



*The wind picks up to 100mph.*

The transmitter outputs 5 volts to the computer.



*Computer receives the 5 volt signal.*

Computer knows 5v=100mph wind and sends out a weather alert email.

# Common Transmitter Types

## *Current*

- Commonly referred to as "Two Wire"
- Output is commonly 4 - 20mA
- Several Devices can receive the same data from the transmitter.
- Essentially not susceptible to electro-magnetic interference.
- Great for long distance transmission over twisted pair wire (up to approximately 4,000 ft.).

# Common Transmitter Types

## *Voltage*

- Commonly referred to as "Three Wire".
- Output is generally either 0-5 or 5-10 volts (v).
- Generally 20% better resolution than current transmitters due to the way receivers handle .
- Requires more expensive three wire shielded cable.
- Good only for relatively short distances (approximately feet).