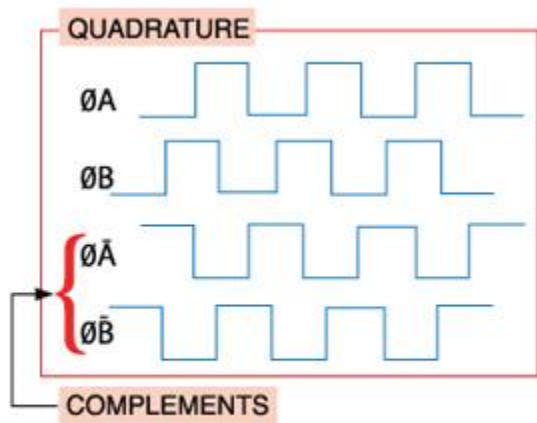# Incremental vs. Absolute

Incremental and absolute encoders perform similar functions, but have dissimilar outputs.

Incremental encoders output pulses each time (and only when) the shaft is turned (or linear target is moved).

Incremental

Absolute

Absolute encoders continuously report their position as a digital message of 1's and 0's, whether the encoder is moving or not. They remember their position even if power is turned off.

The analogy is similar to a clock—the ticking of a clock would be the incremental output, the hands would be the absolute output. By counting the ticks, it is possible to determine the amount of time, but you must have a starting point.

It is possible to replace an absolute with an incremental encoder, and vice versa; software and hardware changes to your system may be required.