

# KISS ESC

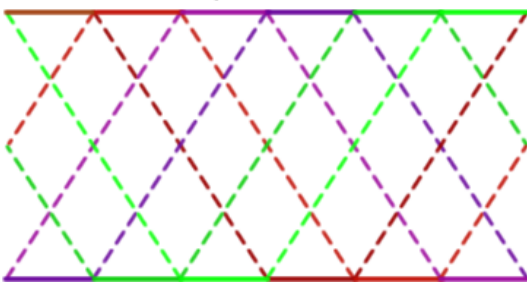
## 32A

### sinHybrid :: Sinwave / BackEMF Hybrid-Commutation

**KISS sinHybrid** offers a new method for commutation to achieve smoother running motors, higher efficiency and back EMF. To avoid loss in KV, the commutation seemingly fades into trapezoidal at around 90% throttle (sinusoidal offers ~10% less kv)

#### Trapezoidal block commutation

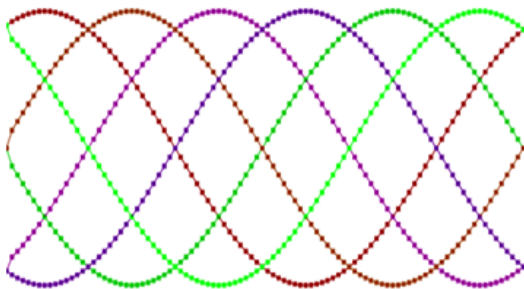
##### Standard Trapezoidal



- + back EMF possible
- vibrations
- running noise
- Efficiency

#### Full sinus curve

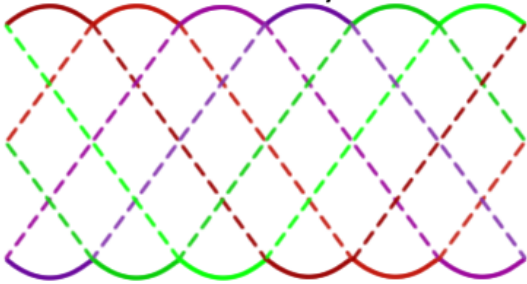
##### Full Sinwave drive



- + quieter running
- + better efficiency (+ 2-4%)
- + better running stability (less vibrations)
- No back EMF possible
- FOC or sensors needed, FOC ESCs need to know many engine and propeller values to run properly – not good for racers and HW is more complicated. Also bad for high KV + many poles.

# KISS sinHybrid

## Sinwave back EMF hybrid



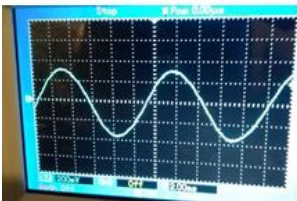
- + quieter running
- + better efficiency
- + better running stability (less vibrations)
- + back EMF possible, runs with all motors

## Back EMF from different motors

Tiger F40 Pro 2400KV



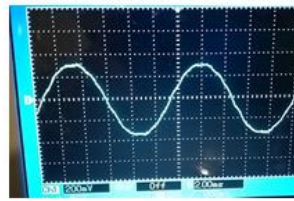
Its back EMF



Tiger F60 Pro 2500KV



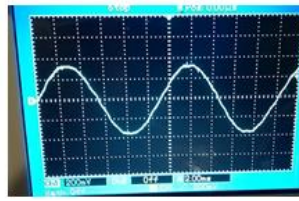
Its back EMF



Cobra 2207 2450KV



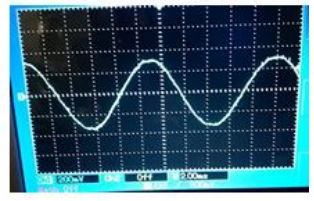
Its back EMF



EMAX RS2205 2600KV



Its back EMF



Some sceptics may say BLDC Motors already have Trapezoid back EMF and Sinus is for PMSM Motors. Actual BLDC Motors have sinusoidal back EMF.