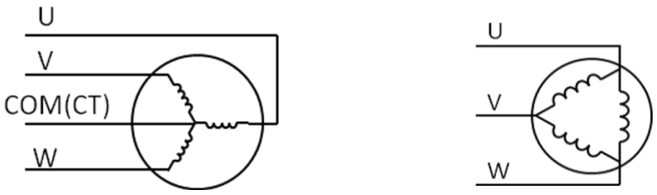
DRV11873/10873 Connection for Delta Wiring Motor (3-wire)

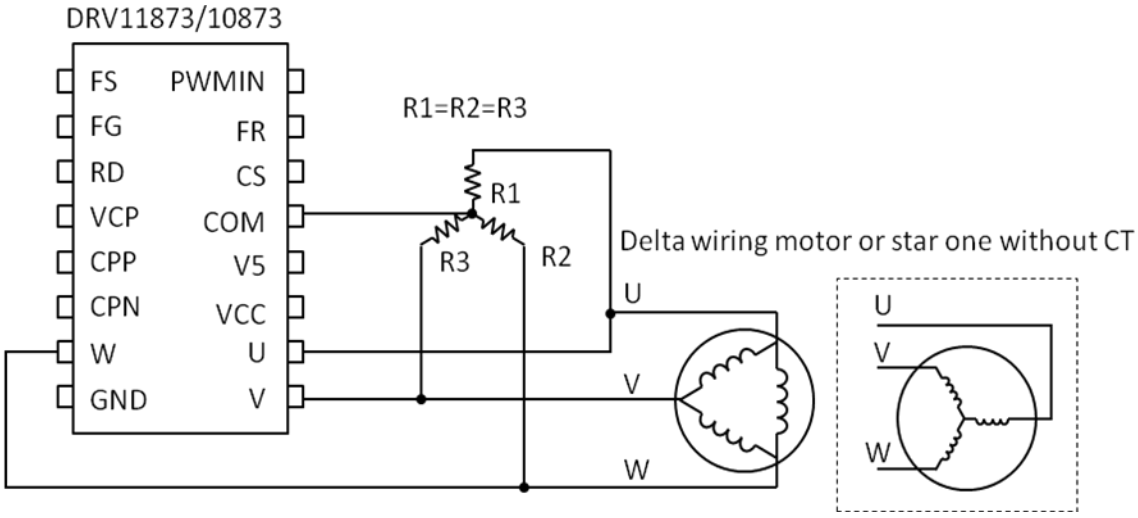
This application note gives a brief guide on how to connect delta wiring motor to DRV11873/10873 12V 3 phase sensor-less BLDC motor driver. Usually there are two kinds of motor wiring topology, star wiring and delta wiring. See the picture below. Star wiring motor can be connected to driver directly. For Delta wiring motors (or star type without CT draw out), with simple external 3 resistors, a virtual COM (Center Tap) can be formed and connected to the COM Pin of the driver. By this way, DRV11873/10873 can be adapted to delta wiring motor applications as well.



(a) Star wiring motor **(b) Delta wiring motor**

Connecting Delta Wiring Motor

Below figure shows virtual center tap implementation method for the delta wiring (3-wire) motors.



(Please refer to the datasheet for pin's connection other than U, V, W, and COM)

1K ~ 3K resistors are recommended for the three resistor R1, R2, R3. Because of the external resistors combining with the internal parasitic capacitor will have filter effect of the BEMF signal, for high speed motors, lower resistor value will be better. Also, the power consuming those resistors should be considered when choosing the footprints of the resistors.