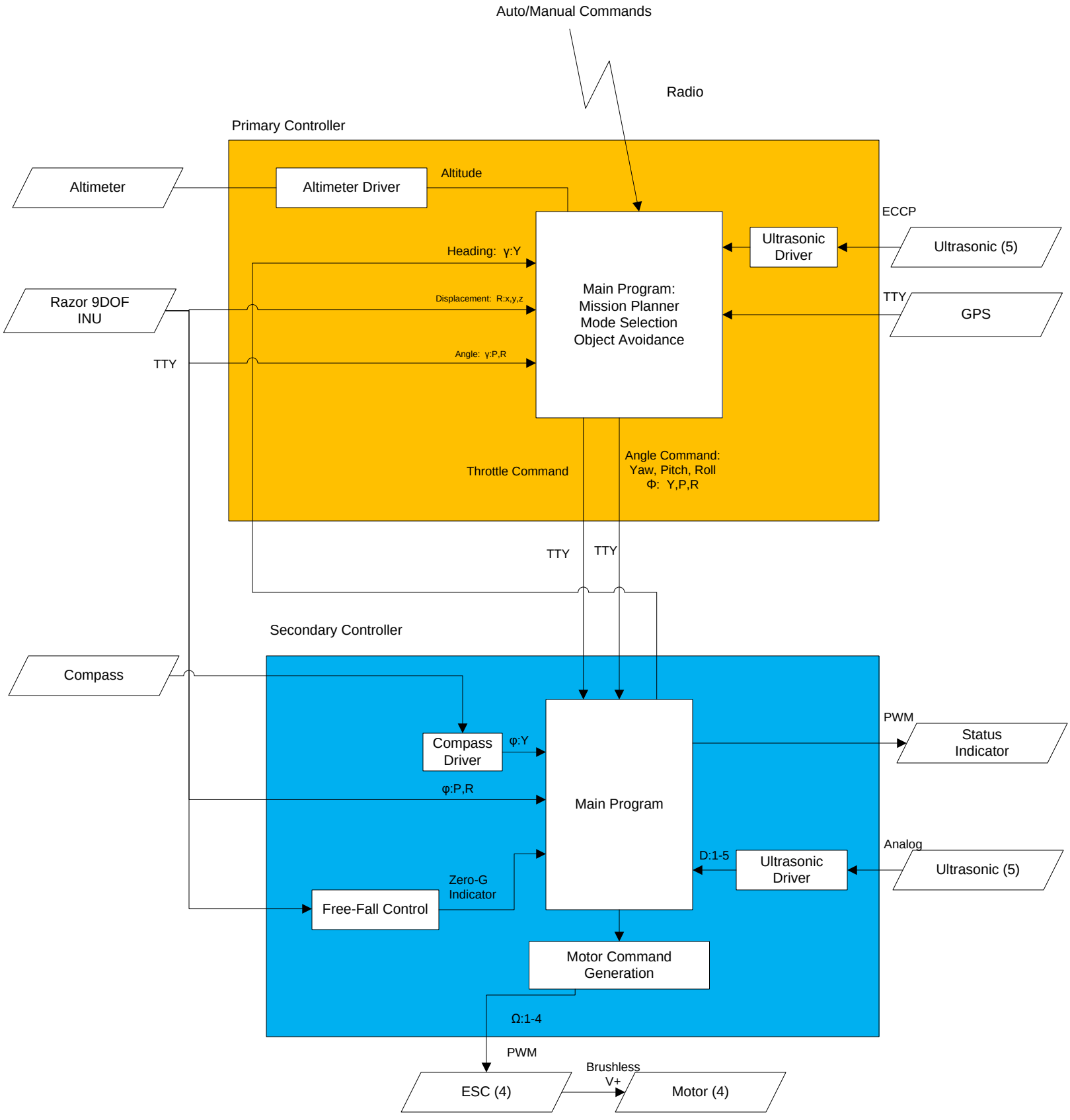
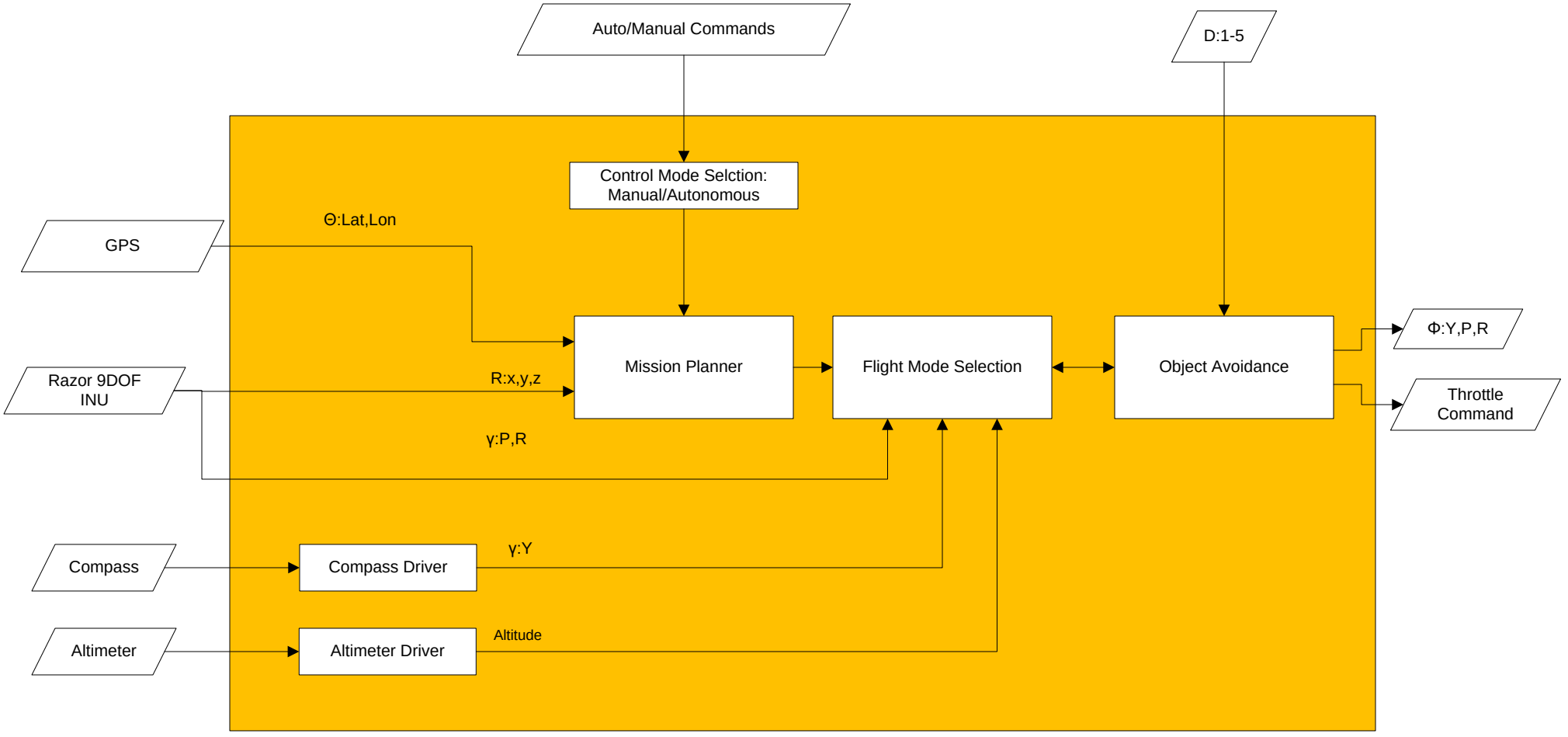
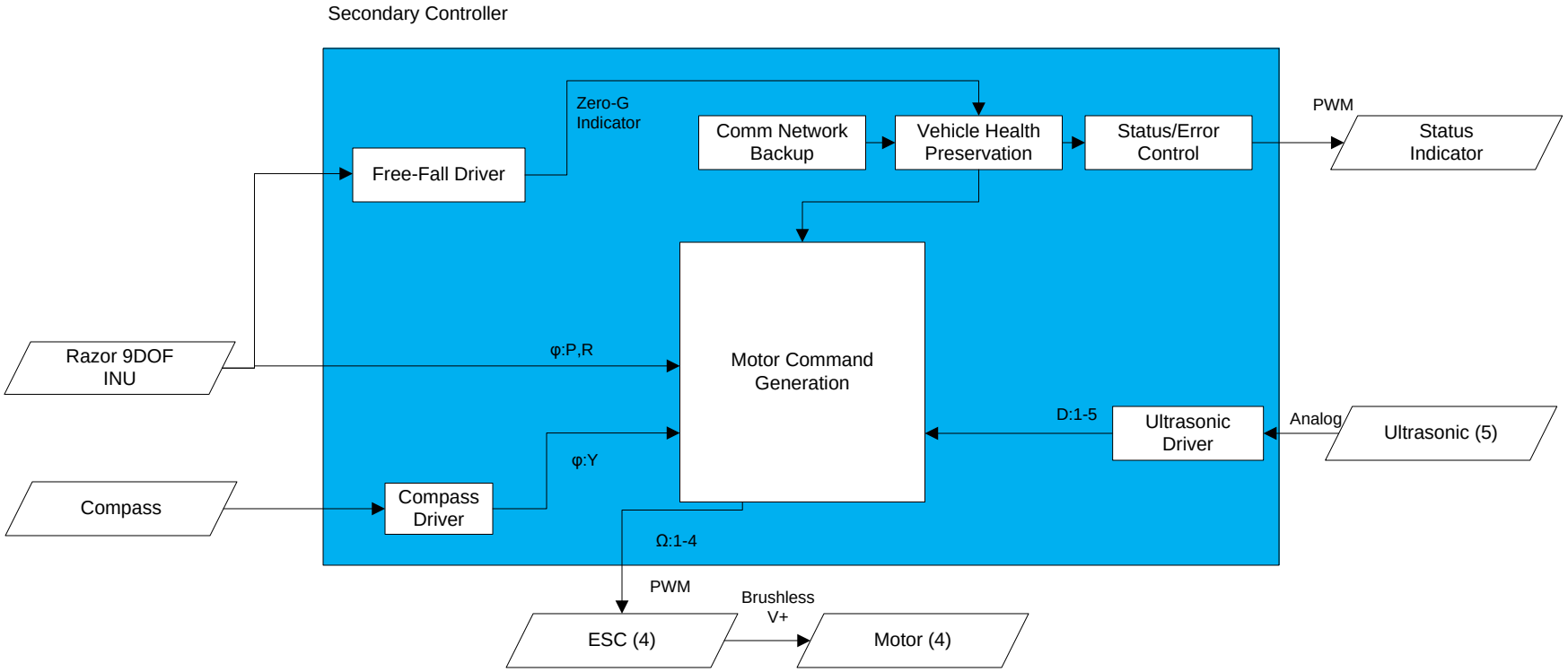
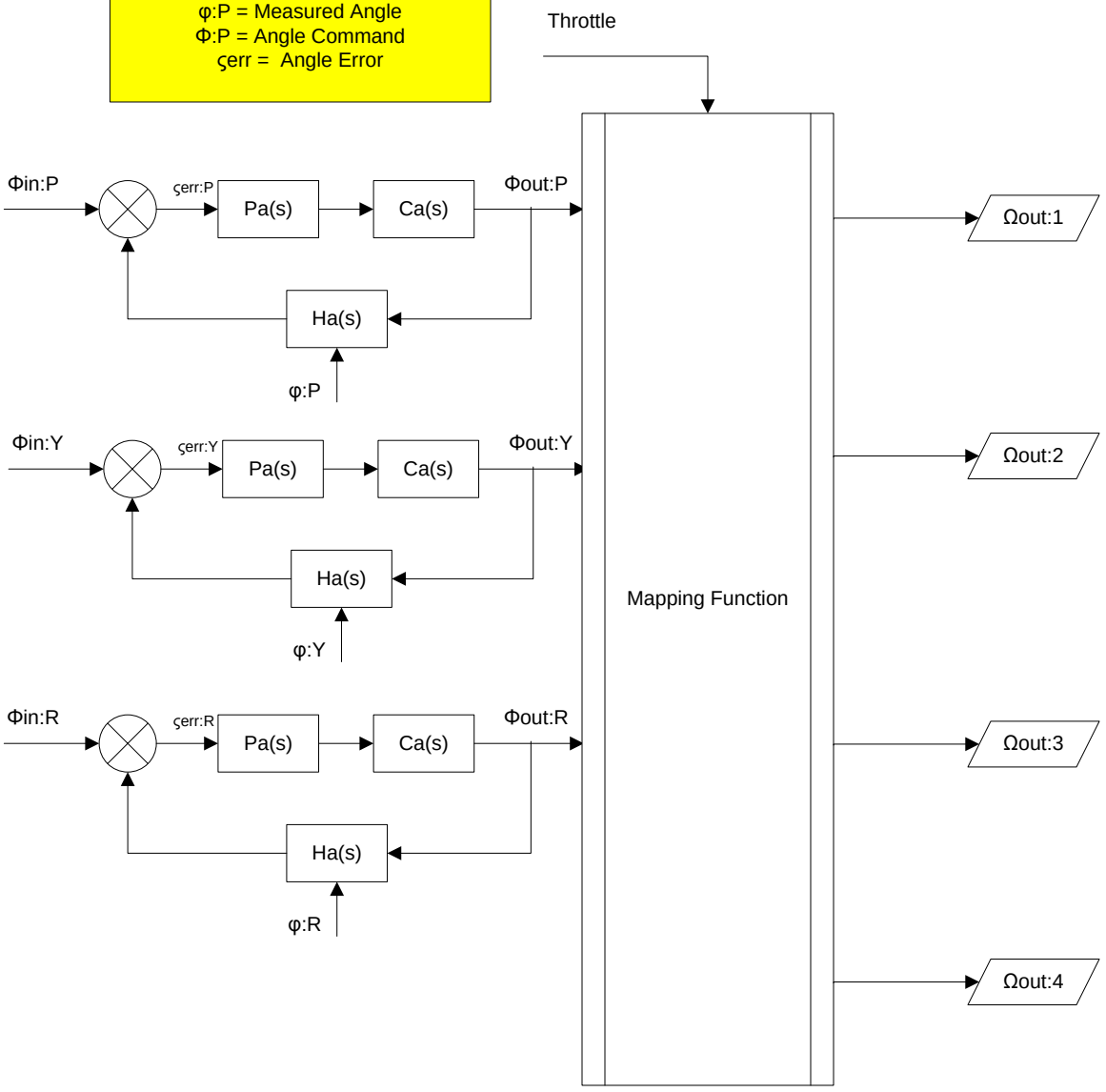

Auto/Manual Commands
Radio
Primary Controller
Altimeter
Altimeter Driver
Altitude
ECCP
Ultrasonic Driver
Ultrasonic (5)
Heading: γ:Y
Razor 9DOF INU
Displacement: R:x,y,z
Main Program:
Mission Planner
Mode Selection
Object Avoidance
TTY
GPS
TTY
Angle: γ:P,R
Throttle Command
Angle Command:
Yaw, Pitch, Roll
Φ: Y,P,R
TTY
TTY
Secondary Controller
Compass
PWM
Status Indicator
Compass Driver
φ:Y
φ:P,R
Main Program
Analog
D:1-5
Ultrasonic Driver
Ultrasonic (5)
Zero-G Indicator
Free-Fall Control
Motor Command Generation
Ω:1-4
PWM
Brushless
V+
ESC (4)
Motor (4)


Auto/Manual Commands
D:1-5
Control Mode Selction:
Manual/Autonomous
Θ:Lat,Lon
GPS
Mission Planner
Flight Mode Selection
Object Avoidance
Φ:Y,P,R
Throttle
Command
Razor 9DOF
INU
R:x,y,z
γ:P,R
Compass
Compass Driver
γ:Y
Altimeter
Altimeter Driver
Altitude


Secondary Controller
Zero-G
Indicator
Comm Network
Backup
Vehicle Health
Preservation
Status/Error
Control
PWM
Status
Indicator
Free-Fall Driver
Razor 9DOF
INU
φ:P,R
Motor Command
Generation
D:1-5
Ultrasonic
Driver
Analog
Ultrasonic (5)
φ:Y
Compass
Compass
Driver
Ω:1-4
PWM
Brushless
V+
ESC (4)
Motor (4)

Ca(s) = KPp + KPi*s + kPd/s
Ha(s) = Sensor Gain
Pa(s) = Plant Transfer Function
For j = Pitch,Yaw,Roll
φ:P = Measured Angle
Φ:P = Angle Command
çerr = Angle Error



Mapping Function:
Constants: MID_RANGE
Ωin:1 = Φout:P,Φout:Y,Φout:R,Throttle