

FMS Interface

Version 1.0

This file is a part of Firmament Autopilot project

Input Bus

INS_Out_Bus

Refer to INS Interface

Pilot_Cmd_Bus

Type	Name	Unit	Comments
uint32	timestamp	ms	timestamp in ms
float	ls_lr	[-1,1]	left stick left/right value
float	ls_ud	[-1,1]	left stick up/down value
float	rs_lr	[-1,1]	right stick left/right value
float	rs_ud	[-1,1]	right stick up/down value
uint32	mode	-	control mode
uint32	command_1	-	TBD
uint32	command_2	-	TBD

Output Bus

FMS_Out_Bus Interface

Type	Name	Unit	Comments
uint32	timestamp	ms	timestamp of FMS output
single	p_cmd	rad/s	rate x command in body frame
single	q_cmd	rad/s	rate y command in body frame
single	r_cmd	rad/s	rate z command in body frame
single	phi_cmd	rad	roll command
single	theta_cmd	rad	pitch command
single	psi_rate_cmd	rad/s	yaw rate command

Type	Name	Unit	Comments
single	u_cmd	m/s	velocity x command in control frame
single	v_cmd	m/s	velocity y command in control frame
single	w_cmd	m/s	velocity z command in control frame
uint32	throttle_cmd	[1000,2000]	throttle command
uint32[8]	pwm_cmd	[1000,2000]	pwm cmd of each motor
uint8	state	-	vehicle state, refer to below definition
uint8	mode	-	control mode, refer to below definition
uint8	reset	-	reset controller
uint8	reserved	-	

state

Value	Comments
0	Disarm, reset = 1, pwm_cmd active
1	Standby, reset = 1, pwm_cmd active
2	Arm, reset = 0, pwm_cmd inactive

mode

Value	Comments
0	Unknown Mode, reset = 1
1	Mission Mode, u_cmd , v_cmd , w_cmd , psi_rate_cmd active
2	Stablize Mode, u_cmd , v_cmd , w_cmd , psi_rate_cmd active
3	Altitude Hold Mode, phi_cmd , theta_cmd , psi_rate_cmd , w_cmd active
4	Attitude Mode, phi_cmd , theta_cmd , psi_rate_cmd , throttle_cmd active
5	Acro Mode, p_cmd , q_cmd , r_cmd , throttle_cmd active