



SELECTION GUIDE

SMART EMBEDDED LIN DRIVER FOR DC, STEPPER AND BLDC MOTORS

The hummingbird's beating wings flap at extremely high frequencies, typically around 50 times per second. This allows it to fly at speeds exceeding 15 m/s, to fly backwards or to seemingly be suspended in the air in perfect balance. What better animal to reflect the motor/control driver and actuator capacities?

Melexis developed a complete portfolio of smart LIN motor drivers and pre-drivers, enabling smart & small, plug & play mechatronics.

These ICs enable small- footprint applications to control BLDC, Stepper or DC motors with on-chip or external NFETs to drive the electric motor with sensor or sensorless in the most silent and efficient way.

LIN EMBEDDED MOTOR DRIVERS (MOTOR CURRENT <1A)

DRIVERS	MLX81310	MLX81315	MLX81330	MLX81332	MLX81334
	GEN 2		GEN 3		
MCU Memory	32 KB Flash		32 KB Flash + 14 KB ROM	32 KB Flash + 16 KB ROM	64 KB Flash + 16 KB ROM
MCU NVRAM	512 B		512 B	512 B	512 B
MCU RAM	2 KB		2.5 KB	2.5 KB	4.5 KB
Driver / Pre-Driver	4x Driver on-chip		4x Driver on-chip		
	typ.5Ω Halfbridge	typ.1Ω Halfbridge	typ. 3Ω Halfbridge	typ. 0.8Ω Halfbridge	
Drive current per phase	< 0.5 A	< 1 A	< 0.5 A	< 1 A	
Motor power range (12 V)	typ. 1...5 W	typ. 5-10 W	typ. 1...5 W	typ. 5-10 W	
Motor voltage range	5.5 V...20 V		5.5 V...20 V (28 V)		
IO pins (analog, digital)	7x LV + 1x HV		3x LV + 1x HV/LV	7x LV + 1x HV/LV	
Motor current sense	Low side, on-chip		Low side, on-chip		
Sensor interface (3.3 V supply)	analog, pwm, spi		analog, pwm, spi, sent, I ² C	analog, pwm, spi, sent, I ² C, uart	
Sensorless support (hw + sw)	yes		yes		
Maximum IC temperature (with validated mission profile)	Tj = 175 °C		Tj = 175 °C		
Package	QFN32 5x5		QFN24 4x4, SO8-ep		QFN32 5x5
Automotive AECQ-100	yes		yes		

LIN EMBEDDED MOTOR PRE-DRIVERS (MOTOR CURRENT >1A)

PRE-DRIVERS	MLX81325	MLX81206	MLX81207	MLX81208	MLX81340	MLX81344	MLX81346	MLX81160
	GEN 2				GEN 3			
MCU Memory	32 KB Flash + 16 KB ROM	64 KB Flash + 6 KB ROM	32 KB Flash + 6 KB ROM	64 KB Flash + 6 KB ROM	32 KB Flash + 26 KB ROM	64 KB Flash + 26 KB ROM	64 KB Flash + 26 KB ROM	32 KB Flash + 16 KB ROM
MCU NVRAM	512 B				512 B			
MCU RAM	2 KB	4 KB	2 KB	4 KB	2.5 KB	4.5 KB	4.5 KB	2.5 KB
Driver / Pre-Driver	4x Pre-Driver <30nC ext. NFETs	3x Pre-Driver <200nC ext. NFETs			3x Pre-Driver <60nC ext. NFETs		3x Pre-Driver <200nC ext. NFETs	6x Driver for external relays
Drive current per phase	n/a				n/a			
Motor power range (12 V)	typ. 10...200 W	typ. 100...1000 W			typ. 10...500 W		typ. 10...1000 W	typ. 200 W
Motor power range (48 V)	-						typ. 10...2000 W	-
Motor voltage range	5.5...32 V	5.5...20 V			5.5...32 V		5.5V to 60V	5.5 V to 32 V
IO pins (analog, digital)	7x LV + 1x HV	4x LV + 1x HV	5x LV + 1x HV		9x LV + 3x HV/LV			
Motor current sense	Low-side, differential external shunt	High-side, external shunt			Low-side, differential external shunt			2x low side, differential external shunt
Sensor interface (3.3 V supply)	analog, pwm, spi	analog, pwm, spi, uart			analog, pwm, spi, uart, I ² C			
Sensorless support (hw + sw)	yes				yes			yes (BLDC)
Maximum IC temperature (with validated mission profil)	Tj = 175 °C				Tj = 175 °C			
Package	QFN32 5x5		TQFP48 7x7		QFN24 4x4 or QFN32 5x5		QFN32 5x5 or TQFP48 7x7	QFN24 4x4
Automotive AECQ-100	yes				yes			

