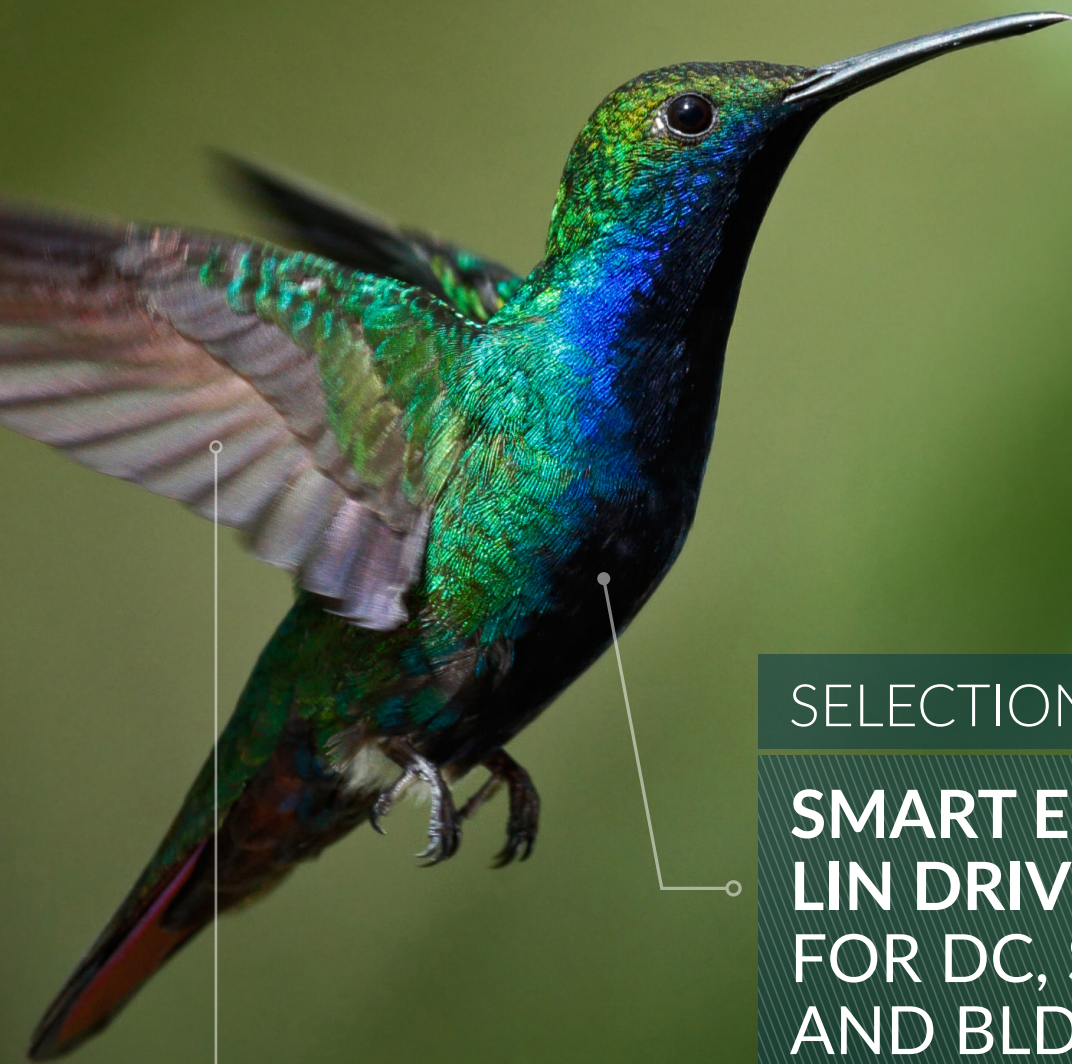




The hummingbird's beating wings flap at extremely high frequencies, typically around 50 times per second. This allows it to fly at speeds exceeding 15 m/s, to fly backwards or to seemingly be suspended in the air in perfect balance. What better animal to reflect the motor/control driver and actuator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

SELECTION GUIDE

SMART EMBEDDED LIN DRIVER FOR DC, STEPPER AND BLDC MOTORS

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
	GEN 2		GEN 3	
MCU Memory	32 KB Flash		32 KB Flash + 14 KB ROM	32 KB Flash + 16 KB ROM
MCU NVRAM	512 B		512 B	512 B
MCU RAM	2 KB		2.5 KB	2.5 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		< 0.5 A	< 1 A
Motor power range (12 V)	typ. 1...5 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)	T _j = 175 °C		T _j = 175 °C	
Package	QFN32 5x5		QFN24 4x4, SO8-ep	
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, I²C			
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			

