



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
	GEN 2		GEN 3	
MCU Memory	32 KB Flash	32 KB Flash	32 KB Flash + 14 KB ROM	32 KB Flash + 16 KB ROM
MCU NVRAM	512 B	512 B	512 B	512 B
MCU RAM	2 KB	2 KB	2.5 KB	2.5 KB
Driver / Pre-Driver	4x Driver on-chip typ.5 Ω Halfbridge	4x Driver on-chip typ.1 Ω Halfbridge	4x Driver on-chip typ. 3 Ω Halfbridge	4x Driver on-chip typ. 0.8 Ω 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	5.5 V...20 V (28 V)	5.5 V...20 V (28 V)
IO pins (analog, digital)	7x LV + 1x HV	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	Low side, on-chip	Low side, on-chip
Sensor interface (3.3 V supply)	analog, pwm, spi	analog, pwm, spi	analog, pwm, spi, sent, I2C	analog, pwm, spi, sent, I2C, uart
Sensorless support (hw + sw)	yes	yes	yes	yes
Maximum IC temperature (with validated mission profile)	T _j = 175 °C	T _j = 175 °C	T _j = 175 °C	T _j = 175 °C
Package	QFN32, 5x5	QFN32, 5x5	QFN24, 4x4, SO8-ep	QFN24, 4x4, SO8-ep
Automotive AECQ-100	yes	yes	yes	yes

LIN EMBEDDED MOTOR PRE-DRIVERS (MOTOR CURRENT >1A)				
PRE-DRIVERS	MLX81325	MLX81206	MLX81207	MLX81208
	GEN 2			
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
MCU NVRAM	512 B	512 B	512 B	512 B
MCU RAM	2 KB	4 KB	2 KB	4 KB
Driver / Pre-Driver	4x Pre-Driver <30nC ext. NFETs	3x Pre-Driver <200nC ext. NFETs	3x Pre-Driver <200nC ext. NFETs	3x Pre-Driver <200nC ext. NFETs
Drive current per phase	n/a	n/a	n/a	n/a
Motor power range (12 V)	typ. 10...200 W	typ. 100...1000 W	typ. 100...1000 W	typ. 100...1000 W
Motor voltage range	5.5 V...32 V	5.5 V...20 V	5.5 V...20 V	5.5 V...20 V
IO pins (analog, digital)	7x LV + 1x HV	4x LV + 1x HV	5x LV + 1x HV	5x LV + 1x HV
Motor current sense	Low-side, differential external shunt	High-side, differential external shunt	High-side, differential external shunt	High-side, differential external shunt
Sensor interface (3.3 V supply)	analog, pwm, spi	analog, pwm, spi, uart	analog, pwm, spi, uart	analog, pwm, spi, uart
Sensorless support (hw + sw)	yes	yes	yes	yes
Maximum IC temperature (with validated mission profile)	T _j = 175 °C	T _j = 175 °C	T _j = 155 °C	T _j = 175 °C
Package	QFN32, 5x5	QFN32, 5x5	TQFP48, 5x5	TQFP48, 5x5
Automotive AECQ-100	yes	yes	yes	yes

