

Magnetic Sensors

	iC-MA	iC-ML	iC-MP	iC-MH	iC-MZ	iC-SM2L	iC-SM5L
Description	HALL Angular Encoder	Linear HALL Encoder	HALL Angular Encoder	HALL Angular Encoder	Differential HALL Switch	Linear AMR sensor (2mm)	Linear AMR sensor (5mm)
Sensors	Quad Hall	Quad Hall	Quad Hall	Quad Hall	Dual Hall	AMR Bridges	AMR Bridges
Magnetic Setup	Diametral magnet	2.56 mm magnetic tape	Diametral magnet	Diametral magnet	Back bias magnet	2 mm magnetic tape	5 mm magnetic tape
Speed	60,000 rpm (8bit)	5 m/s (8bit)	12,000 rpm	120,000 rpm (12bit)	40 kHz	-	-
Resolution (digital)	6 / 7 / 8 bit	6 / 7 / 8 bit	8 bit	up to 12 bit	-	-	-
Resolution (angular, linear)	1.4°	20 µm	1.4°	0.09°		~ µm (depending on interpolation)	
Accuracy	+/- 3°	+/- 50 µm		10 bit (adjusted)		< 20µ	< 50 µ
Digital Outputs	A, B, Z counter signals	A, B, Z counter signals	-	A, B, Z U, V, W	A/NA diff. push-pull		
Line Drivers	-	-	-	RS422 +/- 50 mA (Sin/Cos with test mode)	4.5...36 V +/- 60 mA differential Hall voltage (about 340 mVpp)	-	-
Analog Outputs	Sin/Cos 1Vpp; Sawtooth, Triangle (ratiometric)	Sin/Cos 1Vpp; Sawtooth, Triangle (ratiometric)	ratiometric 0...5 V (0.5...4.5 V) within selectable angular range of 90°, 180°, 270°, 360°			dff. Sin/Cos (~80 mVpp @ 5V)	diff. Sin/Cos (~80 mVpp @ 5V)
I/O Interfaces	-	-	BiSS	BiSS, SSI	-	-	-
Setup	3 config. pins	3 config. pins	BiSS OTP ROM	BiSS OTP ROM	-	-	-
Supply (typ.)	5 V, 14 mA	5 V, 14 mA	5 V, 8 mA	5 V, 14 mA	4.5...36 V, 10 mA	5 V, 5 mA	5 V, 7 mA
OTR °C (chip)	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Package (board space)	DFN 10 4x4 mm ²	TSSOP20 6.5 x 6.5 mm ²	DFN 10 4 x 4 mm ²	QFN28 5x5 mm ²	DFN 10 4 x 4 mm ²	SM2C LGA 7.6 x 2.8 mm ²	SM2C LGA 7.6 x 2.8 mm ²
Application	Absolute and incremental encoder	Incremental linear encoder	Potentiometer replacement	Absolute encoder EC motors	Gear tooth sensor	Linear position sensor	Linear position sensor