



Product Selector Magnetic Angle Sensors / On-Axis Rotary Encoder ICs • Silicon for Motion®

Device	iC-MA	iC-MA3 new	iC-MP	iC-MH	iC-MHA	iC-MH8	iC-MH16 new	iC-MHM	iC-MV	iC-PV	iC-PMX new	iC-TW11 new
Application	Incremental, Analog	Analog Sin/Cos	Potentiometer replacement	Incremental, Singleturn absol., Motor commut.	Analog Sin/Cos	Incremental, Singleturn absol., Motor commut.	Incremental, Singleturn absol., Motor commut.	Single- / Multiturn absolute	Gear Multiturn	Battery Multiturn	Energy Harvesting Multiturn (Wiegand Wire)	Singleturn absol., Servo/stepper feedback, Portable HMI
Sensors	Quad Hall dia 2 mm	Quad Hall dia 2.1 mm	Quad Hall dia 2 mm	Quad Hall dia 2 mm	Quad Hall dia 2 mm	Quad Hall dia 2 mm	Quad Hall dia 2 mm	Quad Hall dia 2.41 mm	Quad Hall dia 1.5 mm	Quad Hall dia 1.75 mm	Quad Hall dia 3.25 mm	Triple Hall dia 2 mm
Magnetic Setup	Diametric magnet 20...100 kA/m	Diametric magnet 20...110 kA/m 15...65 kA/m (5V)	Diametric magnet 20...100 kA/m	Diametric magnet 20...100 kA/m	Diametric magnet 20...100 kA/m	Diametric magnet 20...100 kA/m	Diametric magnet 20...100 kA/m	Diametric magnet 20...100 kA/m	Diametric magnet 20...100 kA/m	Diametric magnet 10...100 kA/m	Diametric magnet 10...400 kA/m	Diametric magnet 25...150 kA/m
Rotary Speed	60,000 rpm	60,000 rpm	12,000 rpm	120,000 rpm	20,000 rpm	120,000 rpm	200,000 rpm	10,000 (80,000) rpm	24,000 rpm	> 12,000 rpm (adj.)	30,000 rpm	24,000 rpm
Digital Resolution	6 / 7 / 8 bit		8 bit	up to 12 bit		up to 12 bit	up to 12 bit	9...14 bit (12 bit)	2 to 8 bit	3 bit		10 bit
Angle Resolution	1.4°	1.4°	1.4°	0.09°		0.09°	0.09°	0.02°	1.4°	45°		0.35°
Linear Resolution												
Accuracy	+/- 3°	+/- 1°	+/- 3°	+/- 0.5° (calibr.)	+/- 0.5°	+/- 0.5° (calibr.)	+/- 0.35° (calibr.)	+/- 0.35° (calibr.)	+/- 3°	+/- 10°		+/- 1°
Position Lag	20 µs	16...5800 µs	40 µs	12...60 µs	12...60 µs	12...60 µs	10...45 µs	10...45 µs	20...160 µs	10 µs		40...225 µs
Digital Outputs	A, B, Z Counter signals	-	Serial in/out	A, B, Z U, V, W (1, 2 pp)		A, B, Z U, V, W (1, 2, 4 pp)	A/B/Z FlexCount U/V/W (1-16 pp)		Serial in/out A, B, Z	Serial, 3-bit parallel		1.8 to 3.3 V
Line Drivers	-	-	-	RS422		RS422	RS422	RS422 / LVDS Transceiver	-	-		-
Analog Outputs	Sin/Cos 2 Vpp; Sawtooth, Triangle (ratiometric)	Sin/Cos diff./single 0.25, 0.5, 1.0 Vpk	Ratiometric 0...5 V (0.5...4.5 V), selectable full scale range of 90°, 180°, 270°, 360°	(Sin/Cos with test mode)	Sin/Cos 1 Vpp diff. @ 100 Ohm	Sin/Cos 1 Vpp diff. @ 100 Ohm		Sin/Cos 1 Vpp diff. @ 100 Ohm	-	-	1 Diff. Output for Capacitive ADCs	-
I/O Interfaces	-	-	BiSS	BiSS, SSI		BiSS, SSI	BiSS, SSI	BiSS, SPI, SSI Multiturn	Shift-Reg (SSI)	Shift-Reg., SSI, 3-bit PAR	SPI	SPI
GPIO Ports							4x					
Setup	3 config. pins	3 config. pins	BiSS OTP ROM	BiSS OTP ROM	factory programmed	BiSS OTP ROM	BiSS OTP ROM	BiSS, I ² C multi-m. (EEPROM)	I ² C multi-master (EEPROM)	I ² C multi-master (EEPROM)	SPI	SPI
Supply (typ.)	5 V (14 mA)	3...5.5 V (8 mA)	5 V (8 mA)	5 V (15 mA)	5 V (23 mA)	5 V (23 mA)	5 V (20 mA)	5 V (20 mA)	5 V (3 mA)	3...5 V (< 10 µA)	5 V (4 mA)	3.3 V (22 µA)
OTR °C (chip)	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125	-40 to 125
Specials							Reverse-polarity protection	Reverse-polarity protection				
Package (board space)	DFN10 4x4 mm ²	QFN16 4x4 mm ²	DFN10 4x4 mm ²	QFN28 5x5 mm ²	QFN28 5x5 mm ²	QFN28 5x5 mm ²	QFN28 5x5 mm ²	QFN28 5x5 mm ²	QFN16 3x3 mm ²	QFN16 3x3 mm ²	QFN32 5x5 mm ²	QFN16 4x4 mm ²

Copyright © 2016, iC-Haus GmbH. This tentative information shall not be considered as a guarantee of characteristics. Rights to technical changes reserved. 6-16

[Magnetic Sensor Applications on iC-Haus Web](#)

Preliminary: please contact iC-Haus