

Product Selector Interpolation ICs • Silicon for Motion®



	iC-NV iC-NVH	iC-NG	iC-TW2	iC-MG iC-MQ	iC-TW28	iC-PI NEW	iC-NQC	iC-NQI	iC-MR3 NEW SAFETY	iC-TW29 PRELIM.	iC-MNF NEW	iC-TW8
	(H: half cycle Z)											
Interpolation	6 bit	8 bit	8 bit	8 bit / 9 bit	10 bit	12 bit	13 bit	13 bit	13 bit S&H	14 bit	3x 14 bit S&H	16 bit
Max. Angle Resolution (per input cycle)	64	256	256	200 / 400	1024	4000 / 4096	8192	8192	8192	16384	16384 (1 Ch.)	65536
Interpolation Factors (to AB outputs)	1, 2, 3, 4, 5, 8, 10, 12, 16	10, 20, 40, 50... 2... 64	1... 64	1, 2, 4, 5, 10, 20, 25, 50 / 1... 100, 2... 64...	1... 256	1... 1000	10... 500	10... 500	-	1... 4096	-	1... 16384
Division Factors (to AB)	-	2, 4, 8	2, 4	-	1... 8	-	-	-	-	1... 4096	-	1... 32
Accuracy (per inp. cyc.)	5.6°	1.4°	4.2°	0.9°	0.5°	0.13°	0.35°	0.35°	0.1°	0.1°	0.1°	0.1°
Conversion Rate	33 Msps	800 ksps	25...30 Msps	5 Msps	3.1 Msps	40 Msps	1.7...8 Msps	1.7...8 Msps	250 ksps	3.1 Msps	210 (280) ksps	250 ksps
Min. AB Edge Distance	30 ns... 7 µs	1 µs... 3 µs	33 ns... 10.2 µs	220 ns... 1.6 µs	20 ns... 5.12 µs	25 ns... 6.4 µs	70 ns... 22 µs	90 ns... 23 µs	20 ns... 5.12 µs	20 ns... 5.12 µs	20 ns... 5.12 µs	31.25 ns... 16 µs
Principle	Flash	Vector tracking	Vector tracking	Vector tracking	ATAN calc.	Vector tracking	Vector tracking	Vector tracking	SAR	ATAN calc.	SAR	ATAN calc.
Latency	< 250 ns	1.2 µs	0.6 to 2.4 µs	200 ns	1.5 µs / < 1 µs w. lag recovery	< 250 ns	< 250 ns	< 250 ns	2 µs	2.4 µs / 5 µs	3 µs (2 µs)	24 µs / < 4 µs w. lag recovery
Signal Conditioning		• By opamp			By push-button					By push-button		By push-button
Offset	-		•	•	• Automatic	•	•	•	•	• Automatic	• 3x	• Automatic
Amplitude	-		•	•	• Automatic	•	•	•	•	• Automatic	• 3x	• Automatic
Phase	-		-	•	• Automatic	•	•	•	•	• Automatic	• 3x	• Automatic
Linearization		• By conversion								• Eccentricity		• LUT
Stabilization				• LED/MR bridge control	• LED/MR bridge control	• LED/MR bridge control			• LED/MR bridge control	• LED/MR bridge control	• LED/MR bridge control	
Incremental (A,B,Z) Commutation (U,V,W)	• +/- 4 mA	• +/- 4 mA	• +/- 6 mA diff. • 1 CPR	• RS422	• RS422	• RS422	• +/- 4 mA	• +/- 4 mA		• RS422		• +/- 4 mA
Analog Sin/Cos				Test mode		Test mode	Test mode	Test mode	• 1 Vpp (100 Ω)		• 1 Vpp (100 Ω)	
Absolute Position		• 8 bit			• 10+14 bit	• 12+15 bit	• Up to 13+24 bit	• Up to 13+24 bit	• Up to 26+24 bit	• Up to 26+32 bit	• Up to 26+24 bit	• 32 bit
Serial I/O			2-wire SPI		4-wire SPI	I2C	BiSS C, SSI	BiSS (B)	BiSS C, SSI, 4-wire SPI	BiSS C, SSI, 4-wire SPI	BiSS C, SSI, SPI	3/4-wire SPI
Parallel I/O		• 8 bit							• 8 bit			
I2C Interface		• Master		• Slave & multi-master		• Slave & multi-master	• Master	• Master	• Master		• Master	• Master
On-Chip EEPROM			•		•					•		
Multiturn Interface					via MCU	• Via index inp.			• BiSS C, SSI	• BiSS C, SSI	• BiSS C, SSI	
Period Counting		• 24 bit			• 14 bit with preset by MCU	• 15 bit	• 24 bit	• 24 bit	• 24 bit with preset	• 32 bit with preset	• 24 bit with preset	• 16 bit
Configuration	By pins	Extern. EEPROM, µC	On-chip EEPROM, SPI	Extern. EEPROM	By pins, SPI, EEPROM, EncoderLink®	Extern. EEPROM	Extern. EEPROM	Extern. EEPROM	Extern. EEPROM, µC	SPI, EEPROM, EncoderLink®	Extern. EEPROM	By pins, µC, ext. EEPROM
Supply	5 V (10 mA)	5 V (15 mA)	3.3 to 5 V (5 to 8 mA)	5 V (12 mA)	3.3 V (25 mA)	5 V (28 mA)	5 V (30 mA)	5 V (30 mA)	5 V, 2.5 to 5V (34 mA)	3.3 V (30 mA)	5 V (60 mA)	3.1 to 5.5 V (12 to 25 mA)
Special Functions				Reverse-pol. protection	Touch probe hold register	Reverse-pol. protection, cyclic checking of setup (CRC)			Safety diagnostics, temperature sensor input	Capture registers, eccentricity corr., position scaling, GPIO pins	Nonius calc., GPIO pins, BiSS transceiver, rev.-pol. protection	Distortion compensation by look-up table
Package	TSSOP20	SO28 SSOP28 5.3	QFN24 4x4	TSSOP20	QFN32 5x5	TSSOP20	TSSOP20	TSSOP20	QFN48 7x7	QFN32 5x5	QFN48 7x7	QFN48 7x7