



Signal Conditioning ICs

iC-MSB iC-TW3

Incremental Interpolation ICs

iC-NV, iC-NVH iC-TW4 iC-TW2 iC-MG iC-MQ

(H: half cycle Z)

Absolute Interpolation ICs

iC-NG iC-NQ(L), iC-NQC iC-MN

(iC-NQL: SSI)

	Signal Conditioning ICs		Incremental Interpolation ICs					Absolute Interpolation ICs		
	iC-MSB	iC-TW3	iC-NV, iC-NVH	iC-TW4	iC-TW2	iC-MG	iC-MQ	iC-NG	iC-NQ(L), iC-NQC	iC-MN
ADC			6 bit	8 bit	8 bit	8 bit	9 bit	8 bit	13 bit	3x 13 bit S&H
Conversion Rate			30 ns flash	20 Msps @ 5V	30 Msps @ 5V	5 Msps	5 Msps	800 ksp/s	1.7 Msps	140 ksp/s (1 Ch.)
Accuracy Class	13 bit	ca. 10 bit	1 LSB @ 6 bit	4 LSB @ 8 bit	3 LSB @ 8 bit	1/2 LSB @ 8 bit	1/2 LSB @ 9 bit	1 LSB @ 8 bit	1/2 LSB @ 10 bit	2 LSB @ 13 bit
Angle Resolution			to 64	to 256	to 256	to 200	to 400	to 256	to 8192	3x to 8192
Interpolation Factors	x1	x1	x2 to x16 x1 to x10	2, 4, 5, 8, 10, 16, 20, 25, 32, 50, 64	x0.25 to x64	x2 to x48 x1 to x50	x2 to x96 x1 to x100	x2 to x64 x1 to x50	x2 to x2048 x10 to x500	x64 to x2048
Inputs	I / V diff. >2.5 µA, >20 mV 500 kHz	V diff. 10 mV to 1.3 Vp 1 MHz	V diff. 10 mV to 1 Vp 200 kHz @ x16	3 µA to 20 µA, 10 mV to 1.5 V 75 kHz @ x64	10 mV to 1.5 Vpp 115 kHz @ x64	I / V diff. >2.5 µA, >20 mV 20 kHz @ x50	I / V diff. >2.5 µA, >20 mV 10 kHz @ x100	OpAmp	V diff. 10 mV to 1 Vp 640 Hz incr. 250 kHz BiSS	I / V diff. >2.5 µA, >20 mV 200 kHz
Max. Input Frequency										
Signal Conditioning			n/a					waveform adaptation		
Offset	•	• automatic		• automatic	•	•	•		•	• x3
Amplitude	•	• automatic		-	•	•	•		•	• x3
Phase	•	-		-	-	•	•		•	• x3
CMOS/TTL Outputs	n/a	n/a	• +/- 4 mA	• +/- 6 mA diff.	• +/- 6 mA diff.	• RS422 +/-20 mA	• RS422 +/-60 mA	• +/- 4 mA	• +/- 4 mA	• RS422 Tx/Rx
RS422 Driver										
A/B Outp. Frequency	500 kHz sine	1 MHz sine	to 3.4 MHz	to 4.8 MHz	to 7.4 MHz	to 1.25 MHz	to 1.25 MHz	to 400 kHz	to 1.3 (2.1) MHz	
Config. Index Signal	analog in/out	analog in/out	90°, 180°	•	• U, V, W	•	•	•	•	-
Commutation										
Min. Phase Distance			20 ns to 7 µs	50 ns	30 ns to 12 µs	200 ns to 1.6 µs	200 ns to 1.6 µs	0.62 µs	120 ns	
Analog Outputs	• 1 Vpp @ 100 Ω	• 1 Vpp @ 100 Ω • 2 Vpp	test mode	test mode	calibration	calibration	calibration		test mode	• 1 Vpp @ 100 Ω
Multiturn Interface										• BiSS C, SSI • 2-pin parallel
I/O Interfaces		1 wire			1 wire, 2 wire SPI			µC (8 bit), 8 bit PAR	BiSS B/C 10Mbit/s SSI 4 Mbit/s	BiSS C SSI
Setup	I2C multi-master	I2C	by 3 pins	4 ext. resistors	on-chip EEPROM	I2C	I2C multi-master	I2C, µC	I2C, BiSS B/C	I2C, BiSS C
Supply	4.3 to 5 V	3.3 to 5 V	5 V	3.3 to 5 V	3.3 to 5 V	5 V	4.3 to 5 V	5 V	5 V	5 V
Reverse Polarity Prot.	•					•	•			•
LED/MR Controller	•					•	•			•
Temperature Sensor	• thermal shutdwn.	• int./ext. and LUT				• thermal shutdwn.	• thermal shutdwn.			• thermal shutdwn.
OTR °C Ta	-25 +100, -40 +115	-40 to +125	-20 to +85	-40 to +125	-40 to +125	-25 to +100	-25 +100, -40 +100	-20 to +70	-25 +85 / -40 +125	-40 +95 / -40 +110
Chip °C Tj	-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
Package	TSSOP20 TSSOP20-TP	QFN32 5x5	TSSOP20	QFN24 4x4	QFN24 4x4	TSSOP20	TSSOP20	SO28 SSOP28 5.3	TSSOP20	QFN48 7x7
Period Counter								• 24 bit	• 8 bit / 24 bit	• 24 bit
Special Features					non-volatile setup					Nonius calculation