



# Product Selector Magnetic/Optical Motor Encoder ICs • Silicon for Motion®

## Magnetic On/Off-Axis Rotary Motor Encoder

Device	<a href="#">iC-MH</a>	<a href="#">iC-MH8</a>	<a href="#">iC-MU</a>
<b>Application</b>	Rotary incr. Singleturn absol. Motor commut.	Rotary incr. Singleturn absol. Motor commut. Sin/Cos	Off-Axis Rotary/linear incremental ST/MT absolute Motor comm.
<b>Sensors</b>	Quad Hall dia 2 mm	Quad Hall dia 2 mm	Hall Line (2x)
<b>Magnetic Setup</b>	Diametral magnet 20...100 kA/m	Diametral magnet 20...100 kA/m	2-Track Tape or Polewheel pitch 1.28 mm 15...100 kA/m
<b>Rotary Speed</b>	120,000 rpm	120,000 rpm	12,000 rpm (19 bit) 16 m/s
<b>Linear Speed</b>			18...20 bit
<b>Resolution digital</b>	up to 12 bit	up to 12 bit	2.5 arcsec (19 bit)
<b>Resolution rotary</b>	0.09°	0.09°	0.156 µm
<b>Resolution linear</b>			+/- 0.1° (calibr.)
<b>Accuracy</b>	+/- 0.5° (calibr.)	+/- 0.5° (calibr.)	
<b>Digital Outputs</b>	A, B, Z U, V, W	A, B, Z U, V, W	A/B/Z FlexCount U/V/W (1-16 pp) STEP / DIR CW / CCW
<b>Line Drivers</b>	RS422 +/- 50 mA	RS422 +/- 50 mA	
<b>Analog Outputs</b>	(Sin/Cos with test mode)	Sin/Cos 1 Vpp diff. @ 100 Ohm	Sin/Cos 250 mVpk
<b>I/O Interfaces</b>	BiSS, SSI	BiSS, SSI	BiSS, SSI, SPI, SSI Multiturn
<b>Setup</b>	BiSS OTP ROM	BiSS OTP ROM	BiSS, SPI I²C (EEPROM)
<b>Supply (typ.)</b>	5 V, 14 mA	5 V, 14 mA	5 V, 50 mA
<b>OTR °C (chip)</b>	-40 to 125	-40 to 125	-40 to 110
<b>Package (board space)</b>	QFN28 5x5 mm²	QFN28 5x5 mm²	DFN16 5x5 mm²

## Optical On-Axis Rotary Motor Encoder

Device	<a href="#">iC-LTA</a>	<a href="#">iC-PT33 Series</a>	<a href="#">iC-PT26 Series</a>
<b>Application</b>	Incremental Enc./BLDC Motor commutation	Incremental/Motor Encoder	Incremental/Motor Encoder
<b>Photosensors Tracks</b>	9	phased array 6	phased array 6
<b>Radial Track Pitch</b>	6	370 µm, 440 µm	370 µm, 440 µm
<b>Radial Scan Length</b>	3.1 mm	3.1 mm	3.1 mm
<b>Optical Window Illumination</b>	1.9 x 3.1 mm 5 mm LED	1.9x3.2mm 5mm LED	1.9x3.2mm 5mm LED
<b>Rotary Speed</b>	typ. 24000 rotation per minute	typ. 12000 rotation per minute	typ. 24000 rotation per minute
<b>Resolution Rotary</b>	variable (defined by code disc)	1000 - 2500 Pulse per Rotation code disc	250 - 1250 Pulse per Rotation code disc
<b>Accuracy</b>			
<b>Digital Outputs</b>	A, B, Z, U, V, W 4mA push-pull (1/4T)	A, B, Z, U, V, W 4mA push-pull (1/4T)	A, B, Z, U, V, W 4mA push-pull others (1/2T, T)
<b>Current</b>			
<b>Index Gating A AND B</b>			
<b>Line Drivers</b>			
<b>Analog Outputs</b>	100 mV test only 9x	100 mV test only 9x	100 mV test only 9x
<b>I/O Interfaces</b>	none	none	none
<b>Setup</b>	code disc	code disc 33,2mm	code disc 33,2mm
<b>Supply (typ.)</b>	5V, 3mA	5V, 3mA	5V, 3mA
<b>OTR °C (chip)</b>	-40...125	-40...125	-40...125
<b>LED-Control</b>	40mA high-side	40mA high-side	40mA high-side
<b>optoBGA(mm)</b>	-	-	-
<b>optoQFN(mm)</b>	32-pin(5x5)	32-pin(5x5)	32-pin(5x5)

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