

# MHK5 SERIES

## ETHERNET/IP ABSOLUTE MULTI-TURN ENCODER



### Features

- Robust and compact design
- Blind shaft version. 15mm standard ID with options down to 6mm ID
- Precision ball bearings with sealing flange
- High temperature performance -40° to +85°C
- Code disc made of unbreakable and durable plastic
- Precision, robust, gear train for turns counting - immune to stray magnetics or electrical interference
- Resolution: 13 bits = 8192 steps/turn (Optional 16 bits)
- Number of turns: 12 bits = 4096 turns (Optional 14 bits)
- Polarity inversion and short circuit protection
- Highly integrated circuit in SMD-technology



## SPECIFICATIONS

### Mechanical

<b>Housing Diameter</b>	58 mm
<b>Shaft Bore</b>	Blind shaft style, 30 mm depth, Ø15 mm standard, reduction sleeves available down to Ø6 mm
<b>Max. Shaft Loading</b>	<b>Axial:</b> 40 N
	<b>Radial:</b> 110 N
<b>Starting Torque</b>	≤ 3 N•cm
<b>Material</b>	<b>Shaft Material:</b> Stainless Steel
	<b>Bearing Housing:</b> Aluminum (stainless steel option, consult factory)
	<b>Cover:</b> Coated Steel (stainless steel option)
<b>Maximum RPM (Continuous)</b>	12,000 RPM
<b>Moment of Inertia</b>	< 30 g•cm <sup>2</sup>
<b>Weight</b>	370 g

## Electrical

<b>Code</b>	Binary
<b>Output Format</b>	Ethernet IP, CIP (Common Industrial Protocol)
<b>Counts per Revolution</b>	13 Bits Standard, 16 Bits Optional
<b>Revolution Counter</b>	12 Bits Standard, 14 Bits Optional
<b>Accuracy</b>	$\pm 0.0220^\circ$ (14-16bit), $\pm 0.0439$ ( $\leq 13$ bit)
<b>Supply Voltage</b>	10 – 30 Vdc (for power supplies that comply with EN 50178)
<b>Current consumption</b>	$\leq 230\text{mA}$ @ 10Vdc, $\leq 100\text{mA}$ @ 24 Vdc
<b>Power Consumption</b>	$\leq 2.5\text{ W}$
<b>Protection Level</b>	Reverse Polarity and Short Circuit Protection
<b>Transmission Rate</b>	10 / 100 Mbits
<b>EMC: Emitted Interference</b>	DIN EN61000-6-4
<b>EMC: Noise Immunity</b>	DIN EN 61000-6-2

## Environmental

<b>Protection Class</b>	IP65 (EN 60529)
<b>Temperature Range (Operation and Storage)</b>	-40 to +85°C
<b>Mechanical Resistance</b>	<b>Shock:</b> $\leq 100\text{ g}$ half-sine, 6ms (EN 60068-2-27); $\leq 10\text{ g}$ half-sine, 16ms (EN 60068-2-29) <b>Vibration:</b> $\leq 10\text{ g}$ (10 Hz to 1 kHz) (EN 60068-2-6)
<b>Humidity</b>	98% Non-Condensing

## Technology and Interface

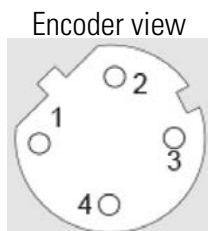
<b>Sensor</b>	Optical
<b>Turns Counting</b>	Mechanical gearing
<b>Diagnostics</b>	Memory
<b>Programming Functions</b>	Resolution, time base, velocity filter, preset, count direction, IP address
<b>Features</b>	Boot loader, Round axis, LED Indicator lights
<b>Interface Cycle Time</b>	$\geq 1\text{ ms}$
<b>Start-up time</b>	$< 250\text{ ms}$
<b>MTTF</b>	65 years @ 40° C

## CONNECTION

### Ethernet Connector

4 pinouts, female, D coded

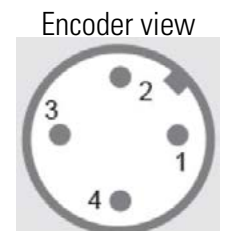
Pinout	Signal
1	Tx+
2	Rx+
3	Tx-
4	Rx-



### Power Supply Connector

4 pinouts male, A coded

Pinout	Signal
1	VS (10-30Vdc)
2	N.C.
3	GND (0V)
4	N.C.

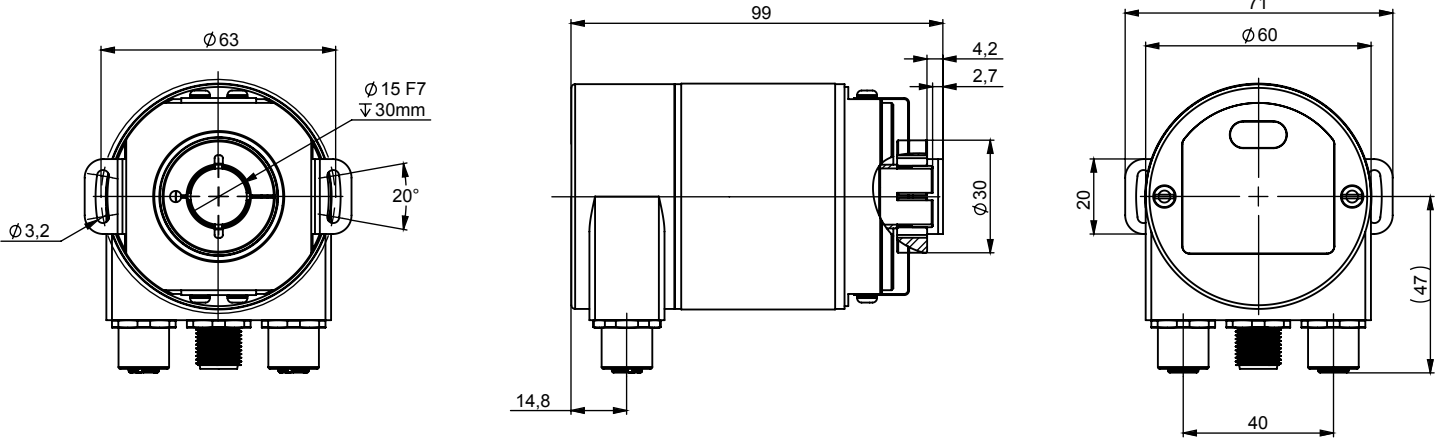




## DIMENSIONS

All dimensions are in millimeters

### MHK5 ETHERNET IP



## ORDERING OPTIONS

Example : MHK5-EEA1B-1213-B150-PRM

	MHK5	-	EEA1B	-	1213	-	B150	-	PRM
<b>Family</b>	<p><b>58 mm diameter, Absolute Geared Multi-Turn.</b>  <b>MHK5</b> = Aluminum, Blind Shaft Encoder  <b>MXK5</b> = Stainless steel Shafted            some specifications may change, consult factory</p>								
<b>Electronics</b>	<p>EEA1B = Ethernet IP</p>								
<b>Resolution</b>	<p>12 13            12 16            14 13            14 16            First number is the turns counter            Second number is the single turn resolution</p>								
<b>Mechanics</b>	<p><b>MHK5</b>  <b>B150</b> = Aluminum version &amp; 15mm Blind Shaft with 9445/017 DAC Tether &amp; IP65  <b>MXK5</b>  <b>B15V</b> = Stainless steel version &amp; 15mm Blind Shaft with 9445/017 DAC Tether &amp; IP67</p>								
<b>Connection</b>	<p>PRM = Radial M12</p>								



## AGENCY APPROVALS & CERTIFICATIONS



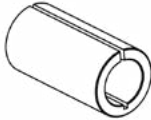
## ACCESSORIES

### Flexmount Kit



Normally is part of the model number construction. For replacement part, use the part number below.  
M9445/017  
comes with all hardware for installation on the encoder

### Brass Reduction Sleeve



9432/06 = 6mm ID  
9432/08 = 8 mm ID  
9432/9.52 = 9.52 mm (3/8") ID  
9432/10 = 10 mm ID  
9432/12 = 12 mm ID  
9432/12.7 = 12.7 mm (1/2") ID  
9432/14 = 14 mm ID

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