

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

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

Electrical

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

Environmental

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

Technology and Interface

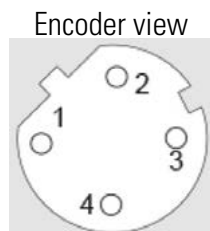
| | |
|------------------------------|-----------------------------------------------------------------------------|
| Sensor | Optical |
| Turns Counting | Mechanical gearing |
| Diagnostics | Memory |
| Programming Functions | Resolution, time base, velocity filter, preset, count direction, IP address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

CONNECTION

Ethernet Connector

4 pinouts, female, D coded

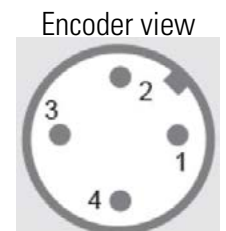
| Pinout | Signal |
|--------|--------|
| 1 | Tx+ |
| 2 | Rx+ |
| 3 | Tx- |
| 4 | Rx- |



Power Supply Connector

4 pinouts male, A coded

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

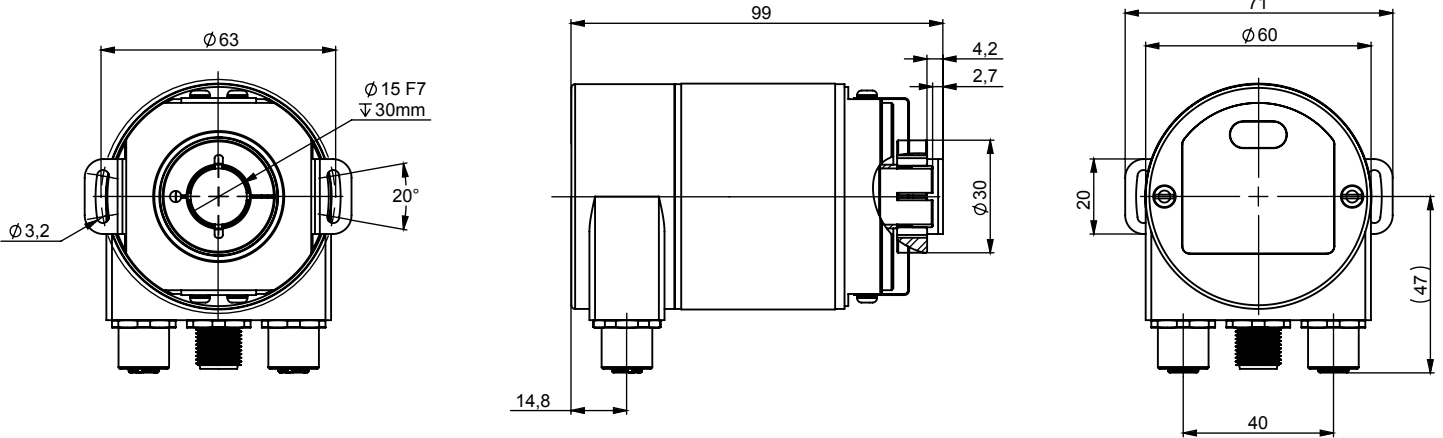




DIMENSIONS

All dimensions are in millimeters

MHK5 ETHERNET IP



ORDERING OPTIONS

Example : MHK5-EEA1B-1213-B150-PRM

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



AGENCY APPROVALS & CERTIFICATIONS



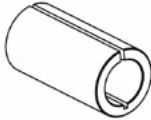
ACCESSORIES

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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