



MHM5 SERIES

ETHERNET/IP ABSOLUTE MULTI-TURN ENCODER



Features

- Robust and compact design
- Solid shaft version Ø 10mm standard, with Ø 6mm optional
- 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 | Housing Diameter: 58mm |
| | Shaft Diameter: 10mm standard, 6mm optional |
| | Flat on shaft: 18mm long |
| 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) |
| Bearing Life @ Load (Axial/Radial) | 40 N / 60 N = 150 X 10 ⁸ |
| | 40 N / 80 N = 100 X 10 ⁸ |
| | 40 N / 110 N = 55 X 10 ⁸ |
| 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- |

Encoder view

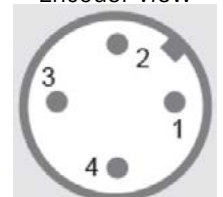


Power Supply Connector

4 pinouts male, A coded

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

Encoder view

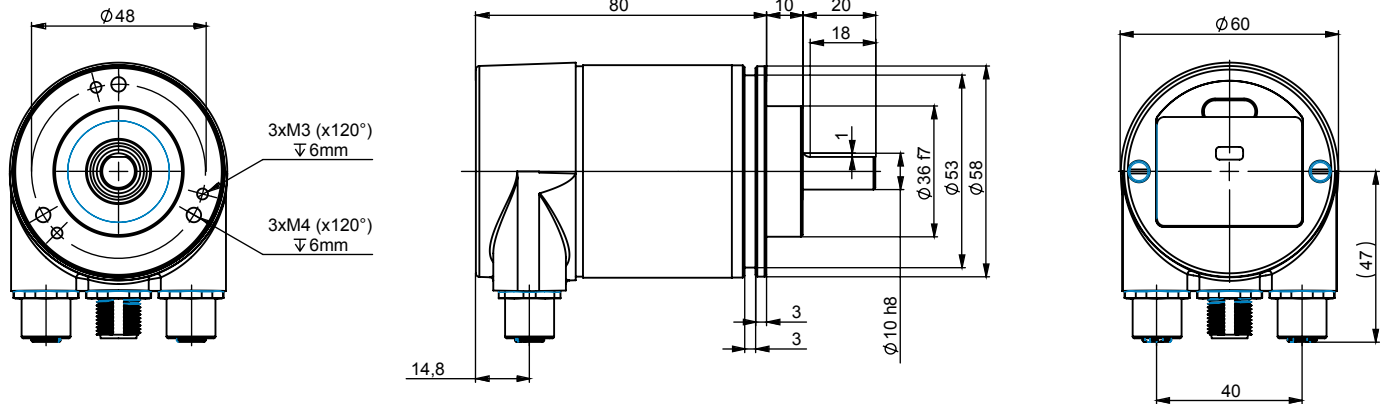




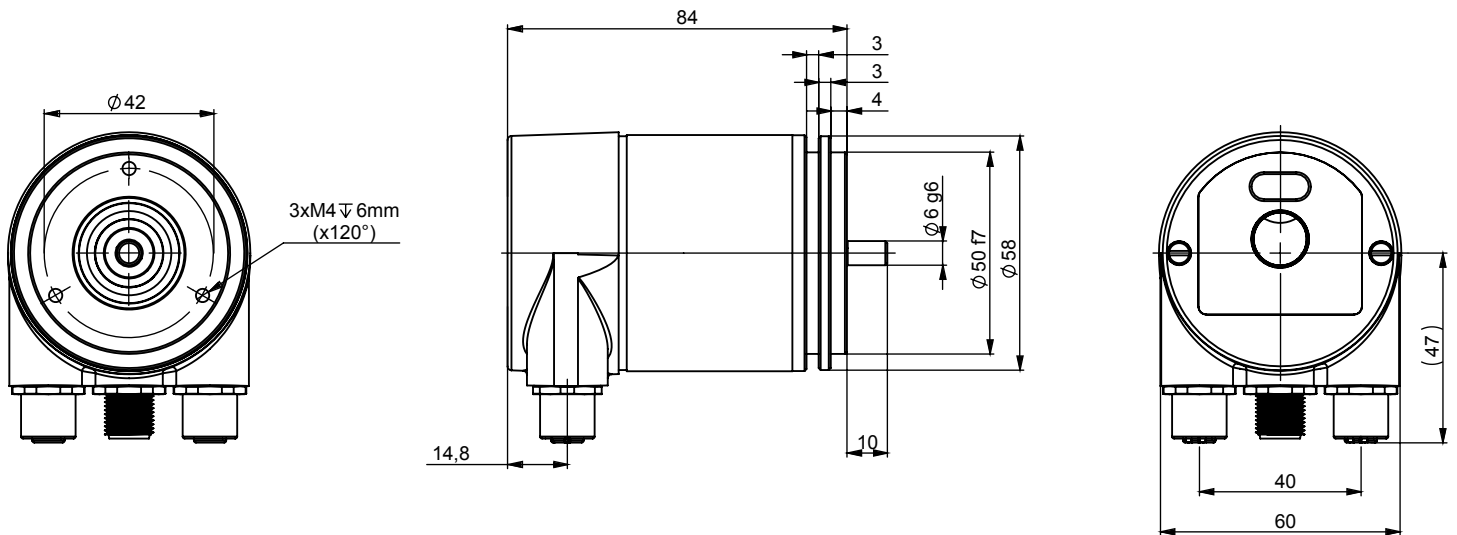
DIMENSIONS

All dimensions are in millimeters

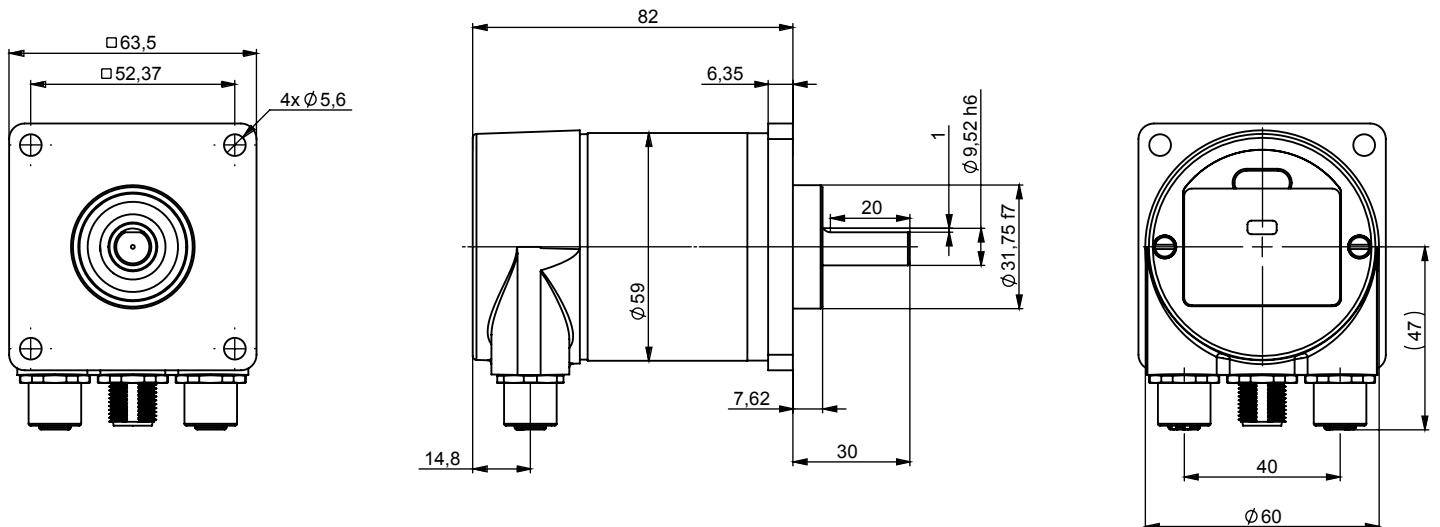
MHM5 - 10 mm Shaft and facemount



MHM5 - 06 mm Shaft and servomount



MHM5 - 9.58 mm (3/8") Shaft and square flange mount





ORDERING OPTIONS

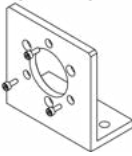

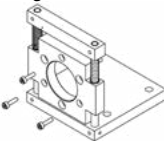


Example : MHM5-EEA1B-1213-C100-PRM

| | MHM5 | EEA1B | 1213 | C100 | PRM |
|--------------------|---|-------|------|------|-----|
| Family | 58 mm diameter, Absolute Geared Multi-Turn. MHM5 = Aluminum, Shafted Encoder MXM5 = Stainless steel Shafted some specifications may change, consult factory | | | | |
| Electronics | EEA1B = Ethernet IP | | | | |
| Resolution | 12 13 12 16 14 13 14 16 First number is the turns counter Second number is the single turn resolution | | | | |
| Mechanics | MHM5 C100 = Aluminum version & 10mm shaft & clamping flange & IP65 S060 = Aluminum version & 6 mm shaft & servo flange & IP65 C10S = Aluminum version & 10mm shaft & clamping flange & IP67 9A70 = Aluminum version & 9.52 mm (3/8") shaft & 2.5" (63.5mm) square flange & IP65 MXM5 C10V = Stainless steel version & 10mm shaft & clamping flange & IP67 | | | | |
| Connection | PRM = Radial M12 | | | | |



AGENCY APPROVALS & CERTIFICATIONS



| | |
|---|--|
| <p>Mounting Bracket Right Angle</p>  | <p>M9202 Note: for mounting aluminum version</p> |
| <p>Bellows Type Coupling</p>  | <p>9403/6-6 = 6mm x 6mm 9403/6-10 = 6mm x 10mm 9403/10-9 = 10mm x 10mm</p> |
| <p>Mounting Bracket Spring Loaded For Use with Measuring Wheel</p>  | <p>M9212</p> |
| <p>Measuring Wheel 200mm Circumference</p>  | <p>9108/10 = Smooth, Polyurethane 9109/10 = Studded, Rubber 9110/10 = Knurled, Aluminum Uses 10mm shaft diameter</p> |
| <p>Measuring Wheel 500mm Circumference</p>  | <p>9101/10 = Smooth, Polyurethane 9102/10 = Studded, Rubber 9103/10 = Knurled, Aluminum Uses 10mm shaft diameter</p> |

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