**HP58 Hockey Puck™**

**Non-contact rotary position sensor**

- Patented true non-contact position sensing
  - 0.5” (12mm) gap between sensor and application
  - 0.10” (2.5mm) center alignment
  - 30° planar tilt
- Totally sealed IP69k *(connector dependent)*
- LED indicators for power and output feedback
- Incremental or Absolute position
- Outputs: Quadrature, Step and Direction, SSI, PWM, Analog, Modicon MODBUS, & J1939 Can Bus
- Detects rotation through non-ferrous barriers; Special applications include use in explosion proof housings, high PSI zone separation, and enclosed rotational measurement

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**STANDARD OPERATING CHARACTERISTICS**

### ELECTRICAL

<table>
<thead>
<tr>
<th>Outputs</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - PPR - SEPP</td>
<td>Incremental 13 bit Quadrature w/ Single Ended Output</td>
</tr>
<tr>
<td>A - PPR - SEPP</td>
<td>Incremental 13 bit Quadrature w/ Differential Output</td>
</tr>
<tr>
<td>A - 1939</td>
<td>J1939 13 bit @1000 positions (8192 positions max)</td>
</tr>
<tr>
<td>A - MOD1</td>
<td>Modicon MODBUS@8192 positions</td>
</tr>
<tr>
<td>B - PWM</td>
<td>PWM absolute position</td>
</tr>
<tr>
<td>A - SSI1</td>
<td>SSI absolute position @8192 positions</td>
</tr>
<tr>
<td>V1</td>
<td>Voltage Out / 5 VDC IN, 0-5 VDC OUT <em>(code V3 for 2x redundant output)</em></td>
</tr>
<tr>
<td>V2</td>
<td>Voltage Out / 6-36 VDC IN, 0-5 VDC OUT</td>
</tr>
<tr>
<td>I1</td>
<td>Current Out / 0-24 VDC IN, 4-20 mA OUT <em>(code I1 for 2x redundant output)</em></td>
</tr>
</tbody>
</table>

- Input Power: 6 to 30 VDC at approx 60 mA max, **not including output loads**
- Electrical Protection: Over-voltage, reserve-voltage, output short-circuit protected
- LED Indicators: Power and output channels
- Connections: Terminal Plug, M8, M12, M12 Pigtail, Flying Lead Cable, Shielded Flying Lead, or Deutsch - 4 or 6 pin
- Resolution: 0.3°
- Repeatability: 0.30%
- Nonlinearity: <1%
- Housing Diameter: 58mm
- Housing Material: HP58 Black Delrin™ *(standard)* or White Delrin™; HP58SE Red Aluminum
- Housing Height: 0.75” (19mm) body; 1.5” (38.1mm) w/ M12 connector
- Mounting: 60.128 mounting holes
- Weight: 2.6 oz
- Magnet / sensor gap*: Standard 0.5” (12mm) *(Max w/ custom mag assembly up to 1” [30mm]*)
- Rated planer tilt / axial gap*: Planar 30° *(Max 45°)* / Axial 0.1” (2.5mm) *(Max 0.16” [4mm]*)
- Speed: 3000 RPM max

### MECHANICAL

- * Non-contact tolerances rated using MAGHRING 1/4x20 magnet accessory.

### ENVIRONMENTAL

- Operating Temperature: -30° to +80° C
- Storage Temperature: -40° to +90° C
- Humidity: 100%
- Shock: 400g/6ms *(MIL STD 202)*
- Vibration: 5 to 3000 Hz, 20g *(MIL STD 202)*
- Protection Class: IP69K *(connection dependent)*

General ordering guide found on next page *(S1 ; I5 / 2)*
**HP58 General Ordering Guide**

Build part number with the following elements:
- **Code 1:** Housing Style
- **Code 2:** MagElec (Sensor Output)
- **Code 3:** Connection
- **Code 4:** Special Codes

### Examples:
- **HP58-B-0080-SEPP-SC72-31**: Black Delrin™ (HP58), Side exit (31), 72” shielded cable (SC72), 13 bit incremental quadrature @ 8192 positions.
- **HP58-B-1939-M12-90**: Black Delrin™ (HP58), Back exit (standard), M12 connector (M12), J1939 @ 8192 positions (modifier 90 for 8192)
- **HP58SE-V1-0-180-0.5-4.5-CW-C72-31**: Red Aluminum (HP58SE), Side exit (31), 0-5V Out (V1) @ 0-180°, 0.5-4.5V out, clockwise signal.

#### Code 1: Housing Style

<table>
<thead>
<tr>
<th>Code</th>
<th>HP58</th>
<th>HP58SE</th>
</tr>
</thead>
</table>

#### Code 2: MagElec (Sensor Output)

<table>
<thead>
<tr>
<th>Code</th>
<th>A - 1939</th>
<th>A - MOD1</th>
</tr>
</thead>
<tbody>
<tr>
<td>A - 1939</td>
<td>13 bit J1939 output is 1000 positions</td>
<td>Standard MOD1 output is 8192 positions</td>
</tr>
<tr>
<td>A - MOD1</td>
<td>13 bit differential quadrature - A B Z</td>
<td>A - 13 bit</td>
</tr>
<tr>
<td>A - SSI</td>
<td>Absolute position SSI @8192 positions</td>
<td>MODIFIER 91 - For 1000 positions add code 90 to end of HP58 P/N</td>
</tr>
</tbody>
</table>

#### Code 3: Connection

<table>
<thead>
<tr>
<th>Code</th>
<th>V1, V2, and I1 (Analog MagElec P/N Guide)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1, V2, and I1</td>
<td>First select MagElec code (V1, V2 or I1) then Angle Range (A1-A2), Voltage Range (V1-V2) and Signal Direction (Clockwise [CW] or Counter [CCW])</td>
</tr>
</tbody>
</table>

#### Code 4: Special Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Side (housing wall)</th>
<th>Front (magnet side)</th>
<th>Back (epoxy side)</th>
<th>White Delrin</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRM</td>
<td>31 Side (housing wall)</td>
<td>32 Front (magnet side)</td>
<td>33 Back (epoxy side)</td>
<td>50 White Delrin</td>
</tr>
</tbody>
</table>

### Special Part Number Information

Review below code sections for important P/N build information.

#### Code 1: Housing Style

- **Modifier 31**: For Side exit connector on HP58 and HP58SE add 31 to end of Joral part number.
- **HP58**: Handles all back exit connections and CABLE ONLY side exit connections (M12P, CXX, SCXX, DE4 & DE6)
- **HP58SE**: Handles all back and side exit connections (including M12P, CXX, SCXX, DE4 & DE6)

#### Code 2: MagElec

(A - ______ - SEPP) or (A - ______ - DIPP)

- Enter Quadrature PPR in place of _______
- A = 13 bit PPR
- Available 13 bit PPR: 0000, 0010, 0011, 0020, 0025, 0032, 0040, 0050, 0064, 0080, 0100, 0215, 0128, 0200, 0250, 0500, 0400, 0500, 1024, 2048

#### Code 3: Connections

- All Outputs, All Connections - Connector exit is standard back exit (sensor epoxy side) for housing style HP58 and HP58SE (for Side exit use modifier 31)
- J1939 Output - Addressing via varying value resistor in connection requires at least five conductors (M12, DE4 and Cables addressing compatible)
- All Outputs w/ Deutsch - DE4 and DE6 connection Deutsch connectors add $20 to HP58 list.
HP58 Dimensions & General Pin-outs

**NOTE:** MAGNETIC MOUNT MATERIALS MUST HAVE Ø 0.6 [25.4] HOLE CENTERED ON SENSOR CENTERLINE.

NON-MAGNETIC MOUNT MATERIAL MAY BE SOLID.

MOUNT WITH 3/16 STAINLESS STEEL 4-40 SCREWS.

**DT04-4P MALE FACE VIEW:**

- 1 = YEL = CAN HIGH
- 2 = GRN = CAN LOW
- 3 = RED = +VDC (VIN)
- 4 = BLK = COMMON/GROUND

**DT04-6P MALE FACE VIEW:**

- 1 = YEL = CAN HIGH
- 2 = GRN = CAN LOW
- 3 = RED = +VDC (VIN)
- 4 = BLK = ADDRESS GROUND
- 5 = WHT = ADDRESS PROG. RESISTOR
- 6 = BLK = COMMON/GROUND

**M12-5P MALE FACE VIEW:**

- 1 = BRN = +VDC (VIN)
- 2 = WHT = DIG. LIMIT OUT*
- 3 = BLUE = COMMON/GROUND
- 4 = BLK = PROP. VDC OUTPUT
- 5 = GRY = NOT USED
  *OPTION CONSULT FACTORY

**DIMENSIONS:**

- Ø 2.26 [58.0]
- Ø 1.97 SERVO MOUNT [50.0]
- Ø 0.126 TYP. 6 [3.25]

**NON-COMMUTATIVE POSITIVE SENSORS**

For most recent dimensions please consult factory.