

HP38 Hockey Puck™ *non-contact rotary position sensor*

- OEM driven solution with minimum order quantities
- Compact bare bones non-contact rotary encoder
 - Body only 0.69" (17.5mm) tall
- 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
- Outputs: Quadrature, SSI, Analog, & J1939 Can Bus



STANDARD OPERATING CHARACTERISTICS

ELECTRICAL	Outputs	B - [PPR] - SEPP Incremental 10 bit Quadrature w/ Single Ended Output A B Z
		B - 1939 J1939 10 bit @ 512 positions
		B - PWM PWM absolute position
		B - SSI1 SSI absolute position @ 512 positions
		V1 Voltage Out / 5 VDC IN, 0-5 VDC OUT
		V2 Voltage Out / 6-36 VDC IN, 0-5 VDC OUT
		Input Power 6 to 30 VDC at approx 60 mA max, <i>not including output loads</i>
		Electrical Protection Over-voltage, reserve-voltage, output short-circuit protected
		LED Indicators Power and output channels
		Connections M8, M12 Pigtail, Terminal Block, Flying Lead Cable, or Deutsch (4 or 6 pin)
		Resolution 0.3°
		Repeatability 0.30%
	Nonlinearity <1%	
MECHANICAL	Housing Diameter	38mm
	Housing Material	Black Delrin™ (standard)
	Housing Height	0.69" (17.5mm) body
	Mounting	32mm (.884) spacing w/ 4mm diameter screws
	Weight	1.3 oz
	Magnet / sensor gap*	Standard 0.5" (12mm) (Max w/ custom mag assembly up to 1" [30mm])
	Rated planar tilt / axial gap*	Planar 30° (Max 45°) / Axial 0.1" (2.5mm) (Max 0.16" [4mm])
	Speed	3000 RPM max
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 (<i>connection dependent</i>)

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

General ordering guide found on next page (S2; I4 / 2)



HP38 GENERAL ORDERING GUIDE

Build part number first by selecting **Housing Style** (code 1), **MagElec** (code 2), and **Connection** (code 3). Add **Special Codes** (code 4) to the end of the Joral part number. Refer to '**Special Part Number Information**' for explanation of modifiers.

Examples: **HP38-B-0256-SEPP-M12P** - Black Delrin™ (HP38), M12 pigtail (M12P), 10 bit incremental quadrature @ 256 ppr

HP38-B-1939-SC72 - Black Delrin™ (HP38), 72" Shielded cable, 10 bit J1939 @ 512 positions

HP38-V1-0-360-5-4.5-CW-C72 - Black Delrin™ (HP38), 72" Cable (SC72), 0-5v Voltage Out (V1) @ 0-360°, 0.5-4.5v out, clockwise signal

Code 1: Housing Style	Code 2: MagElec (Sensor Output)	Code 3: Connection	Code 4: Special Codes
HP38 HP38 material black Delrin™, connector orientation SIDE EXIT. For REAR EXIT connector on HP38 add code 33 to end of P/N.	B - _____ - SEPP	10 bit single ended quadrature - A B Z	TRM Pluggable Terminal block M8 M8 male
	B - 1939	10 bit J1939 @ 512 positions	M12P M12 male on 18' pigtail CXX Flying lead cable (enter XX as inches)
	B - SSI1	Absolute position SSI @ 512 positions	SCXX Shielded cable (enter XX as inches)
	B - PWM	PWM absolute position	DE4 DT04 - 4 pin male Deutsch DE6 DT04 - 6 pin male Deutsch
	V1	5 VDC IN, 0-5 VDC OUT	
	V2	6-36 VDC IN, 0-5 VDC OUT	
			31 Side Exit (housing wall) 33 Back Exit (epoxy side) 71 Roller 72 Spindle
* More outputs and connection options available, contact Joral if desired configuration is not listed			

Special Part Number Information *Review below code sections for important P/N build information*

Code 1: Housing Style

- **Modifier 33** - For BACK EXIT connector orientation on HP38 add 33 to end of Joral P/N
- **HP38** - Handles ALL back exit and CABLE ONLY side exit connections

Code 2: MagElec

(B - _____ - SEPP)

- Enter Quadrature PPR in place of _____
- B = 10 bit PPR
- **Available 10 bit PPR:** 0032, 0064, 0128, 0256

B - 1939

- 10 bit J1939 output is 512 positions
- B = 10 bit

V1, V2, and I1 (Analog MagElec P/N Guide)

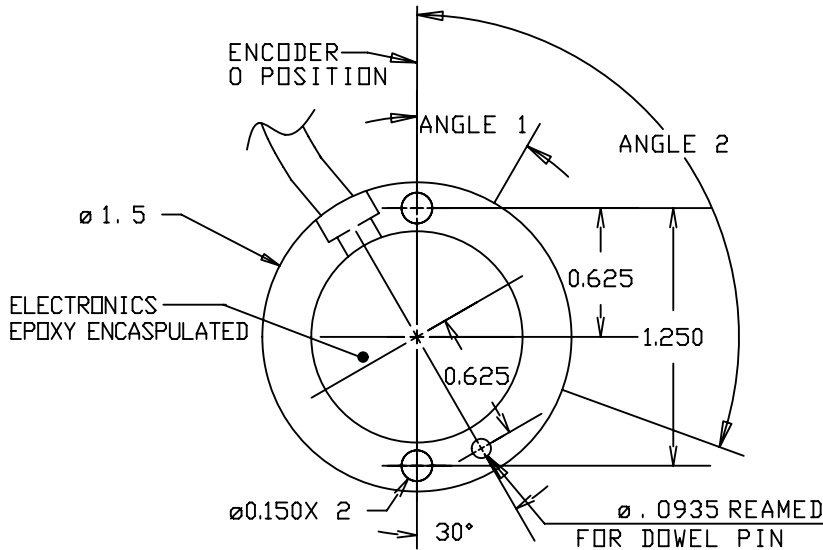
- First select MagElec code (**V1, V2 or I1**) then Angle Range (**A1-A2**), Voltage Range (**VR1-VR2**) and Signal Direction (**Clockwise [CW] or Counter [CCW]**)
- **PART NUMBER FORMULA**
(MagElec)-(A1-A2)-(VR1-VR2)-(CW or CCW)
- **EXACT V1, V2, and I1 EXAMPLES**
HP38 - **V1 - 0-360 - 0.5-4.5 - CW - C72**
HP38 - **V2 - 0-180 - 0-5 - CCW - C72**
HP38 - **I1 - 180-270 - 4-20 - CW - C72**

Code 3: Connections

- **All Outputs, All Connections** - Standard connection orientation SIDE EXIT. For BACK EXIT connector on HP38 add 33 to end of Joral HP38 P/N
- **J1939 Output** - Addressing via varying value resistor in connection requires at least five conductors (*M12, DE6 and Cables addressing compatible*)
- **All Outputs w/ Deutsch** - DE4 and DE6 connection Deutsch connectors add \$20 to HP38 list



HP38 DIMENSIONS & GENERAL PIN OUTS

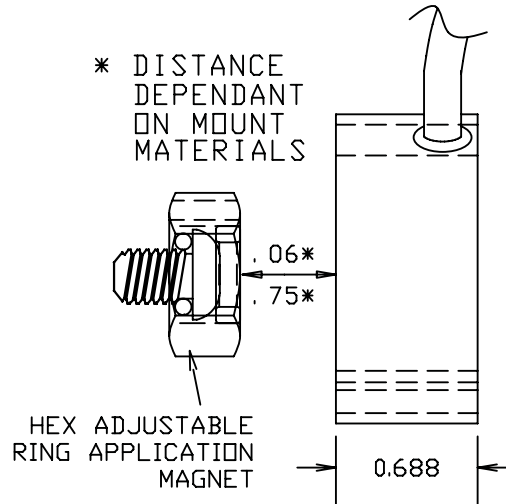


HOUSING/INSTALL NOTES:
MAGNET MOUNT MATERIALS
MUST HAVE Ø1.0 [25.4]
HOLE CENTERED ON SENSOR
CENTERLINE

NON-MAGNETIC MOUNT
MATERIAL, MAY BE SOLID

MOUNT WITH 316 STAINLESS
STEEL 4-40 SCREWS

* DISTANCE
DEPENDANT
ON MOUNT
MATERIALS

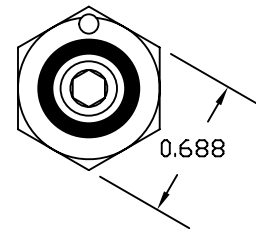


STANDARD MAGNET
MAG-H-RING-ASSM.
1/4-20 X .47



MAGNET NOTE:
STANDARD MAGNET INCLUDED AS
ACCESSORY WITH PURCHASE OF
NON-CONTACT SENSOR

V1, V2, I1
HEX ADJUSTABLE
MAGNET DETAIL
(FACE VIEW)



HEX ADJUSTABLE MAGNET NOTE:
ADJUSTABLE RING MAGNET INCLUDED
AS ACCESSORY WITH PURCHASE OF
ANALOG/VOLTAGE NON-CONTACT
SENSOR (OUPUTS V1, V2, I1)

FOR ZERO/HOME POSITION CAPABILITY
WITH ALL ANALOG ABSOLUTE NON-
CONTACT POSITION SENSORS

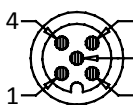
**DT04-4P MALE
FACE VIEW**



DT04-4P J1939 OUTPUT

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

**M12-5P MALE
FACE VIEW**



**M12-5P/CABLE/FLYING LEAD
QUADRATURE OUTPUT**

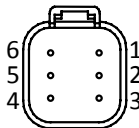
- 1 = BRN = +VDC (VIN)
- 2 = WHT = CHANNEL B
- 3 = BLUE = COMMON/GROUND
- 4 = BLK = CHANNEL A
- 5 = GRY = CHANNEL Z

**M12-5P/CABLE/FLYING LEAD
PROPORTIONAL (ANALOG) OUTPUT**

- 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

**DT04-6P MALE
FACE VIEW**



DT04-6P J1939 OUTPUT

- 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 AND 5 CONDUCTOR
CABLE J1939 OUTPUT**

- 1 = BRN = +VDC (VIN)
- 2 = WHT = CAN HIGH
- 3 = BLUE = COMMON/GROUND
- 4 = BLK = CAN LOW
- 5 = GRY = OPTIONAL ADDRESS
PROGRAMMING RESISTOR

Dimensions informative only
For most recent dimensions please consult factory

